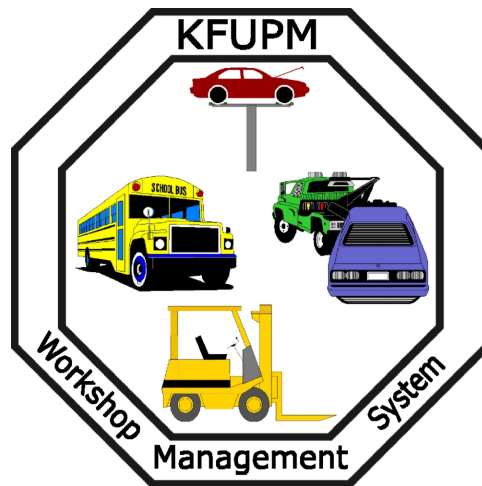


King Fahd University of Petroleum and Minerals
College of Computer Sciences and Engineering
Department of Information and Computer Sciences

ICS-411 Senior Project (992)
“KFUPM Workshop Management System”



Fahad S. Al-Qadaa, 968197
Muhammad A. Bukhari, 965289

Date: May 20TH, 2000

KFUPM Car Workshop Management System

Introduction:

KFUPM owns various types of vehicles, such as, sedans, pickups, heavy-duty vehicles and buses. University colleges, service departments and KFUPM officials use these vehicles. With such variety of uses and number of vehicles, it was more efficient for KFUPM to maintain its own vehicles.

KFUPM was established along time ago. The workshop is managed in a classical way. Today, lots of major workshops use computer-based workshop management systems to manage their overall activities.

Since KFUPM workshop serves university vehicles only, i.e. non-profit workshop, with limited set of activities (or operations), it was recommended that an in-house workshop management system be developed.

The purpose of this project is to build – from scratch – a workshop management system to be used at KFUPM workshop.

I. Requirements:

A. Software requirements:

- Microsoft Windows 9x, NT, or 2000
- Microsoft SQL 7.x

B. Hardware Requirements:

- An IBM or 100% compatible PC
- 32MB RAM Minimum
- 30MB free hard disk space

C. Functional Requirements:

1. **Maintain Vehicle Data:** The system shall provide means for tracking data about each KFUPM vehicle using a central vehicles database. The system shall also allow users to update vehicle data using operations such as adding new vehicle records, modifying existing vehicles records, etc.
2. **Issue and Track Service Request (SR):** The system shall provide means for issuing and tracking service requests submitted by workshop customers by saving SR data in an SR database.
3. **Issue and Track Work Orders (WO):** The system shall provide means for issuing WO against every SR and facilitate WO tracking by saving all WO data in a WO database.
4. **Track Workshop Issued Purchase Orders (PO):** The system shall provide means for tracking workshop issued PO's by assigning a unique number for each issued PO and saving PO data in a PO database.
5. **Maintain Vehicle History:** The system shall provide means for tracking each vehicle maintenance history by collecting vehicle data and vehicle WO data.
6. **Produce Statistical Data About The Workshop:** The system shall provide means for producing workshop statistical data, e.g. Number of times a certain vehicle has been serviced in a given range.

7. Generate Work-Complete Report: After closing a work order, the system shall provide means for generating work-complete reports. The report should list spare part(s) used, cost of spare part(s) and labor charges.

D. Non-functional Requirements:

1. Product Requirements:

- a. The system should have different levels of access, i.e. security levels.
- b. The system should provide adequate response time.

2. Organizational Requirements:

- a. The system shall comply with all standard form currently approved by KFUPM administrative affairs workshop forms.
- b. The system shall be adaptable by other KFUPM service departments.
- c. The system shall have a user manual and a graphical user interface.

3. External Requirements:

- None

II. System Evolution:

Currently, the workshop has a single computer. With plans to purchase more and have an internal LAN, the system could be further extended to utilize the network.

The planned workshop LAN will also be tapped into KFUPM intranet. This means the workshop may have its own intranet site. One advantage of doing so is to have the system on the intranet with the facility to allow workshop customers to track the status of their vehicles via the intranet.

III. Test Cases:

Vehicles:

No.	Action	Input	Source	Expected Reaction	Description
1	Add	Vehicle KFUPM No.	User – Manual	Saved Record	Add a new vehicle to vehicles database
2	Add (duplicate)	Vehicle KFUPM No.	User – Manual	Error Message	Adding a new vehicle with an existing KFUPM No. will result in an error message
3	Search	Vehicle KFUPM No.	User – Manual	Complete Vehicle Data	List vehicle data using its KFUPM No.
4	Search	Vehicle KFUPM No.	User – Dropdown List	Complete Vehicle Data	List vehicle data using its KFUPM No.
5	Search (no record)	Vehicle KFUPM No.	User - Manual	Error Message	Trying to list a non-existing vehicle data will result in an error
6	Modify	Vehicle KFUPM No.	User – Manual	Saved Record	Modify vehicle data & save changes
7	Delete	Vehicle KFUPM No.	User – Manual	Delete Record	Deleting a vehicle will delete all related records from various WMS databases

Service Requests:

No.	Action	Input	Source	Expected Reaction	Description
1	Add	Service Request No.	User – Manual	Saved Record	Add a new service request (SR) to SR database
2	Add (duplicate)	Service Request No.	User – Manual	Error Message	Add a new service request to SR database with an existing SR No.
3	Search	Service Request No.	User – Manual	Complete SR Data	List SR data using SR No.
4	Search	Vehicle KFUPM No.	User – Manual	Complete SR Data	List All service requests data for a given vehicle using its KFUPM No.
5	Modify	Service Request No.	User – Manual	Saved Record	Modify service request data & save changes
6	Delete	Service Request No.	User – Manual	Delete Record	Delete service request data & save changes

Similar test cases can be applied against Work Orders and Purchase Orders.

IV. Risk Analysis:

In this section, the risks involved during the development process are identified and assessed.

A. Requirement Collection:

- System users are not very familiar with computers, hence, users requirement are not very specific.
- Extracting information and inter-relating user-provided forms may not result in accurate representation.
- Users may not fully understand the requirements specified by the development team.

B. Design:

- Identifying various system modules and components inappropriately may result in ambiguous system design and add complexity in the implementation phase.

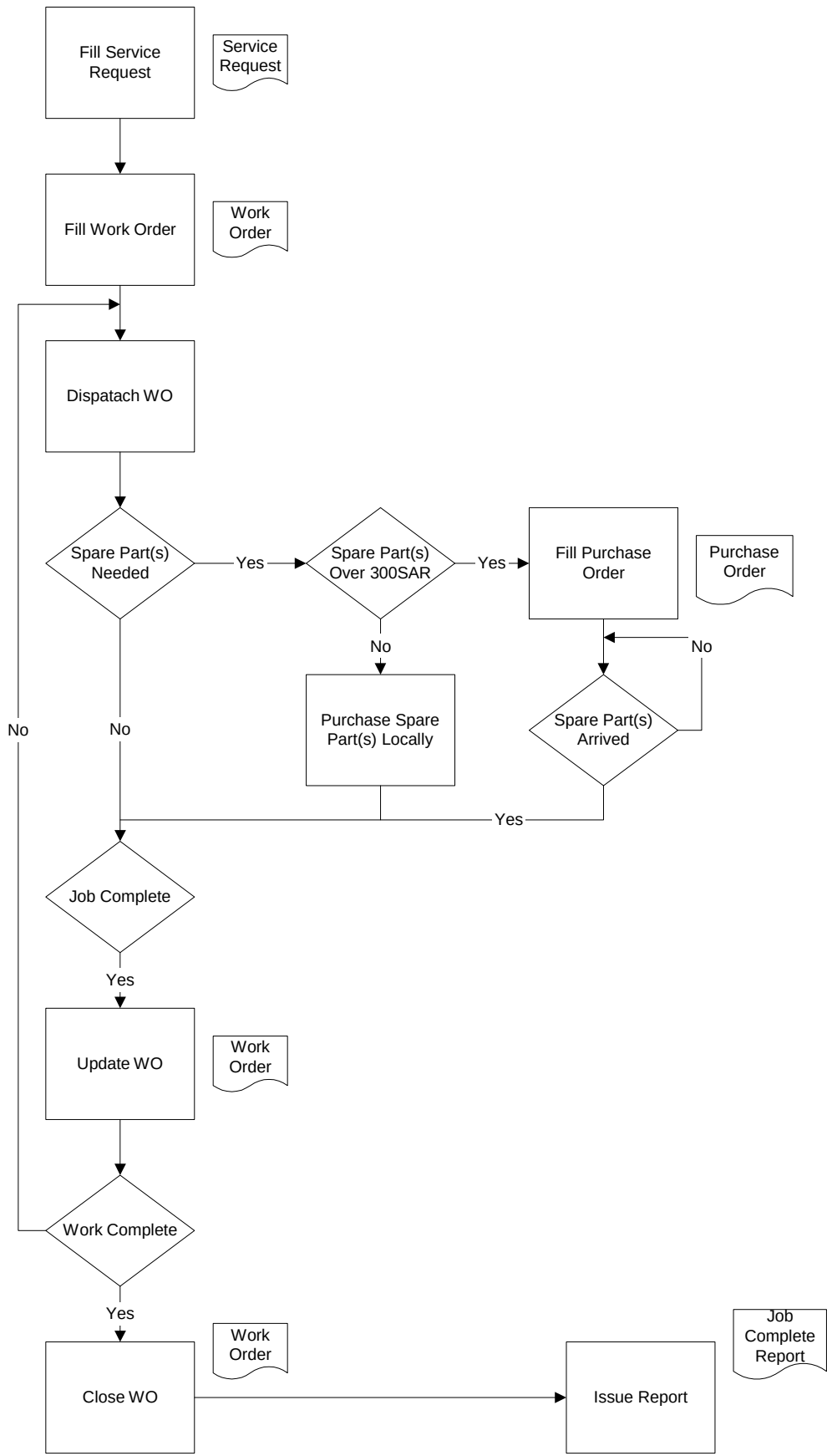
C. Implementation:

- Learning new tools required for system implementation is an overhead for the development team.

D. General:

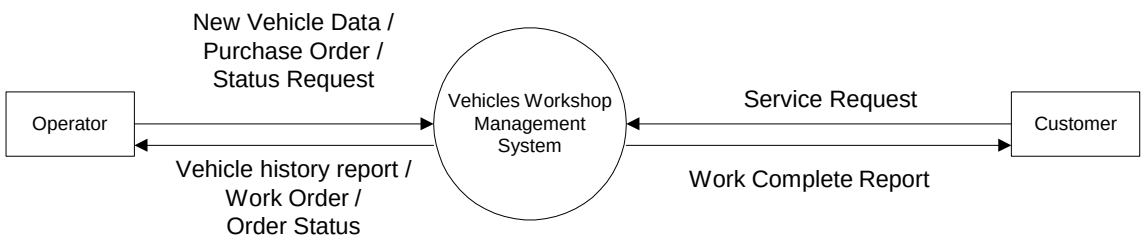
- Producing a clear, simple & comprehensive user manual.
- Training target system users.

V. Scenario:

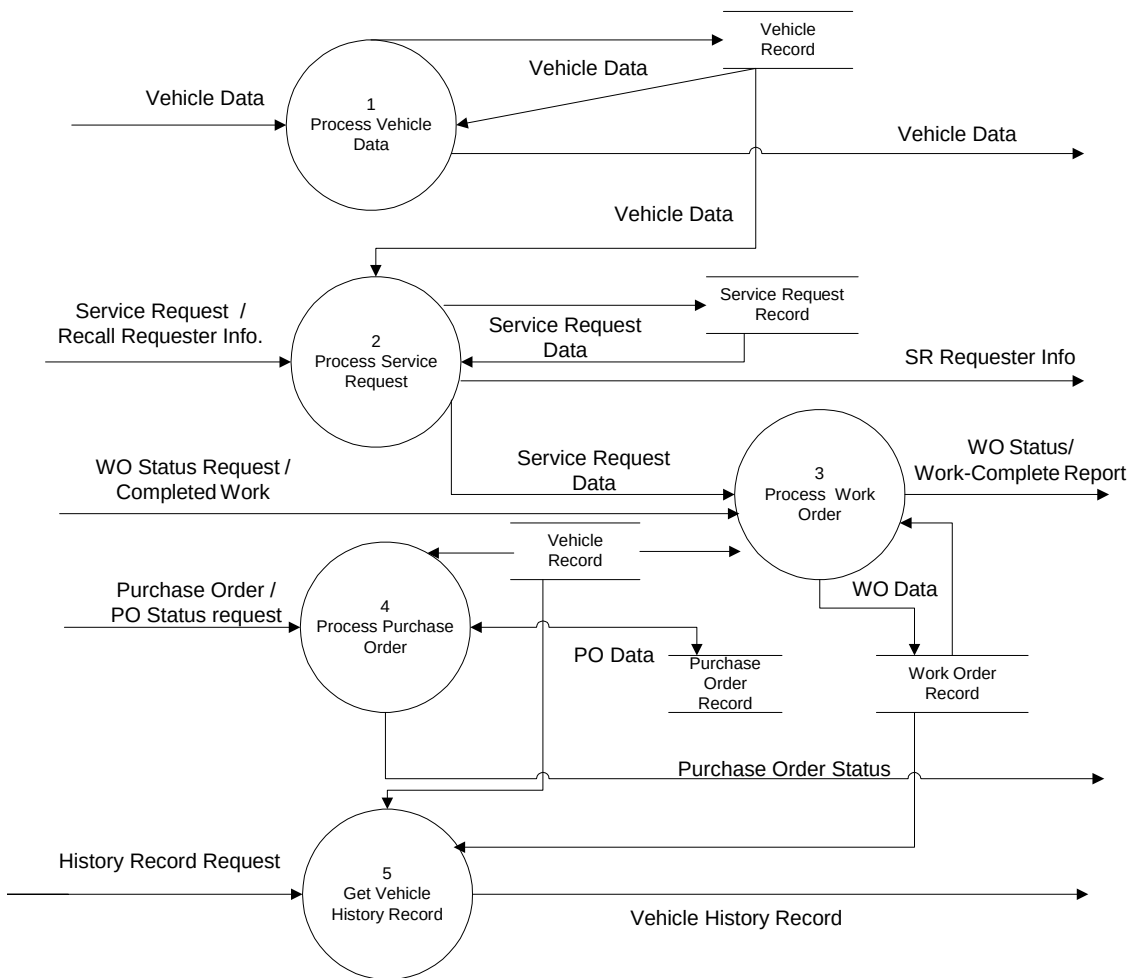


VI. Data Flow Diagram:

A. Level 0 DFD



B. Level 1 DFD



VII. Requirements Specification:

1. Maintain Detailed Vehicle Information:

Requirement No.	1.1
Function	Add vehicle record
Description	Add new vehicle record to vehicles database. A new KFUPM vehicle is added as a new record and saved. The system should not allow duplicate records, i.e. KFUPM No.
Inputs	New vehicle data
Source	User
User Level	Admin or Operator
Outputs	Saved vehicle record
Destination	Vehicle database
Requires	User input

Requirement No.	1.2
Function	Modify vehicle record
Description	Modify an existing vehicle record by retrieving vehicle data from vehicles database using key fields, and allow the user to change certain fields only and save.
Inputs	KFUPM number or registration number, and modified data.
Source	User
User Level	Admin or Operator
Outputs	Modified vehicle record
Destination	Vehicle database
Requires	User input

Requirement No.	1.3
Function	Display vehicle record
Description	Display an existing vehicle record by retrieving vehicle data from vehicles database using KFUPM No. or Reg. No.
Inputs	KFUPM number or registration number.
Source	User
User Level	Admin, Operator or Guest
Outputs	Displayed vehicle data
Destination	Screen
Requires	User input

Requirement No.	1.4
Function	Delete vehicle record
Description	Delete a vehicle record from vehicles database in addition to all related records in system databases.
Inputs	Vehicle KFUPM No. or Reg. No.
Source	User
User level	Admin or Operator
Outputs	
Destination	Screen or printer
Requires	User input

Requirement No.	1.5
Function	Archive a retired vehicle record
Description	Archived a vehicle record that is in retired status.
Inputs	User confirmation
Source	System
Outputs	Generate archived vehicle list
Destination	Screen or printer
Requires	None

2. Track All Service Request:

Requirement No.	2.1
Function	Add a new service request
Description	Add a new service request record to service request database (SR). The user opens a new service request record and adds new service request data. The system should not allow duplicate SR records.
Inputs	Service request data
Source	User
User Level	Admin or Operator
Outputs	Saved service request
Destination	Service request database
Requires	User input

Requirement No.	2.2
Function	Modify an existing service request data
Description	Modify service request data by retrieving SR record and allowing user to modify certain fields in the SR only.
Inputs	Service request number
Source	User
User Level	Admin or Operator
Outputs	Service request record
Destination	Service request database
Requires	User input

Requirement No.	2.3
Function	Display service request
Description	Retrieve and display service request information by retrieving service request record from service request database using service request number.
Inputs	Service request number
Source	User
User Level	Admin, Operator or Guest
Outputs	Service request record
Destination	Service request database
Requires	User input

Requirement No.	2.4
Function	Delete service request
Description	Delete a service request record from service request database in addition to all related records in system databases.
Inputs	Service request number.
Source	User
User level	Admin or Operator
Outputs	
Destination	
Requires	User input

3. Track All Work Orders:

Requirement No.	3.1
Function	Add a new work order
Description	Add new work order record to work order database (WO). The user opens a new WO record and then adds WO's data. The system should not allow duplicate WO records.
Inputs	WO number, KFUPM number or registration number, and service request no.
Source	User
User Level	Admin or Operator
Outputs	Saved WO record
Destination	WO database
Requires	User input

Requirement No.	3.2
Function	Modify Work Order data
Description	Modify an existing work order record by retrieving WO data from WO database using key fields, and allowing user to change non-key data and save.
Inputs	WO number, KFUPM number or registration number, and modification data.
Source	User
User Level	Admin or Operator
Outputs	Modified WO record
Destination	WO database
Requires	User input

Requirement No.	3.3
Function	Display work order
Description	Display WO status by retrieving WO data from WO database using key fields.
Inputs	WO number, KFUPM number or registration number.
Source	User
User Level	Admin, Operator or Guest
Outputs	Displayed WO data
Destination	Screen
Requires	User input

Requirement No.	3.4
Function	Delete work order
Description	Delete work order record from work order database and all related records in various system databases.
Inputs	WO number, KFUPM number or registration number.
Source	User
User Level	Admin or Operator
Outputs	
Destination	
Requires	User input

Requirement No.	3.5
Function	Generate Work Complete Report
Description	Generate a printed report reflecting total cost of maintaining a given vehicle based on work order. The report is then sent to the user as an invoice.
Inputs	WO number
Source	User
Outputs	Work complete report
Destination	Screen and printer
Requires	User input

4. Track All Purchase Orders:

Requirement No.	4.1
Function	Add purchase order record
Description	Add a new purchase order record (PO) to PO database. The user opens a new PO record, adds the new PO data and assigns a unique WMS number. The system should not allow duplicate WMS records.
Inputs	Purchase order data
Source	User
User Level	Admin or Operator
Outputs	Saved PO record
Destination	PO database
Requires	User input

Requirement No.	4.2
Function	Modify purchase order record
Description	Modify an existing PO record by retrieving PO data from PO database using WMS key field, and allow the user to change non-key data and save.
Inputs	WMS assigned PO number.
Source	User
User Level	Admin or Operator
Outputs	Modified PO record
Destination	PO database
Requires	User input

Requirement No.	4.3
Function	Display purchase request
Description	Display an existing PO record by retrieving PO data from PO database using WMS assigned number.
Inputs	WMS assigned PO number
Source	User
User Level	Admin, Operator or Guest
Outputs	PO record
Destination	Screen
Requires	User input

Requirement No.	4.4
Function	Delete purchase order
Description	Delete an existing PO record by retrieving PO record from PO database using assigned WMS number, and allowing the user to delete record.
Inputs	WMS assigned PO number.
Source	User
User Level	Admin or Operator
Outputs	Displayed PO record
Destination	Screen
Requires	User input

5. Maintain vehicle History Record:

Requirement No.	5.1
Function	Generate & display vehicle history.
Description	Generate vehicle history report by referencing vehicles database and WO database about a given vehicle.
Inputs	KFUPM number or reg. number
Source	User
User Level	Admin or Operator
Outputs	Vehicle history
Destination	Screen or printer
Requires	User input

Requirement No.	5.2
Function	Calculate vehicle total maintenance cost
Description	Calculate total maintenance cost by referencing vehicle and work order databases.
Inputs	KFUPM number or reg. number
Source	User
User Level	Admin or Operator
Outputs	Total cost
Destination	Screen or printer
Requires	User input

6. Generate Workshop Statistical Data:

Requirement No.	6.1
Function	List cars serviced per department
Description	Generate a list of all vehicles serviced that belong to a given department.
Inputs	Dept. code/name
Source	User
User Level	Admin or Operator
Outputs	List
Destination	Screen or printer
Requires	User input

Requirement No.	6.2
Function	List work orders complete in a given date range
Description	Generate a list of work orders by a given date range
Inputs	Date range
Source	User
User Level	Admin or Operator
Outputs	List
Destination	Screen or printer
Requires	User input

Requirement No.	6.3
Function	Calculate workshop income in a given date range
Description	
Inputs	Date range
Source	User
User Level	Admin or Operator
Outputs	List
Destination	Screen or printer
Requires	User input

Requirement No.	6.4
Function	Calculate cost of spare parts used in a given date range
Description	
Inputs	Date range
Source	User
User Level	Admin or Operator
Outputs	List
Destination	Screen or printer
Requires	User input

VIII. Abstract Specification:

The proposed system, i.e. the KFUPM Workshop Management System (WMS) shall provide computerized alternative to the current classic workshop management system.

WMS will be composed of several databases. The Vehicle DB will contain data about every KFUPM vehicle. This database will be the major source for Vehicles data in WMS. Nearly each component of WMS will utilize this DB.

The Service Request and the Work Order databases will contain and track data about Service Requests and Work Orders respectively. In addition, a Purchase Order DB will track all purchased orders issued by the workshop.

Based on the initial customer-filled Service Request (SR), the SR data will be saved in an SR Database and a Work Order (WO) will be initiated, given a unique WO number and saved in a WO Database. Next, the WO is dispatched by the workshop's supervisor to the appropriate technician or mechanic for action.

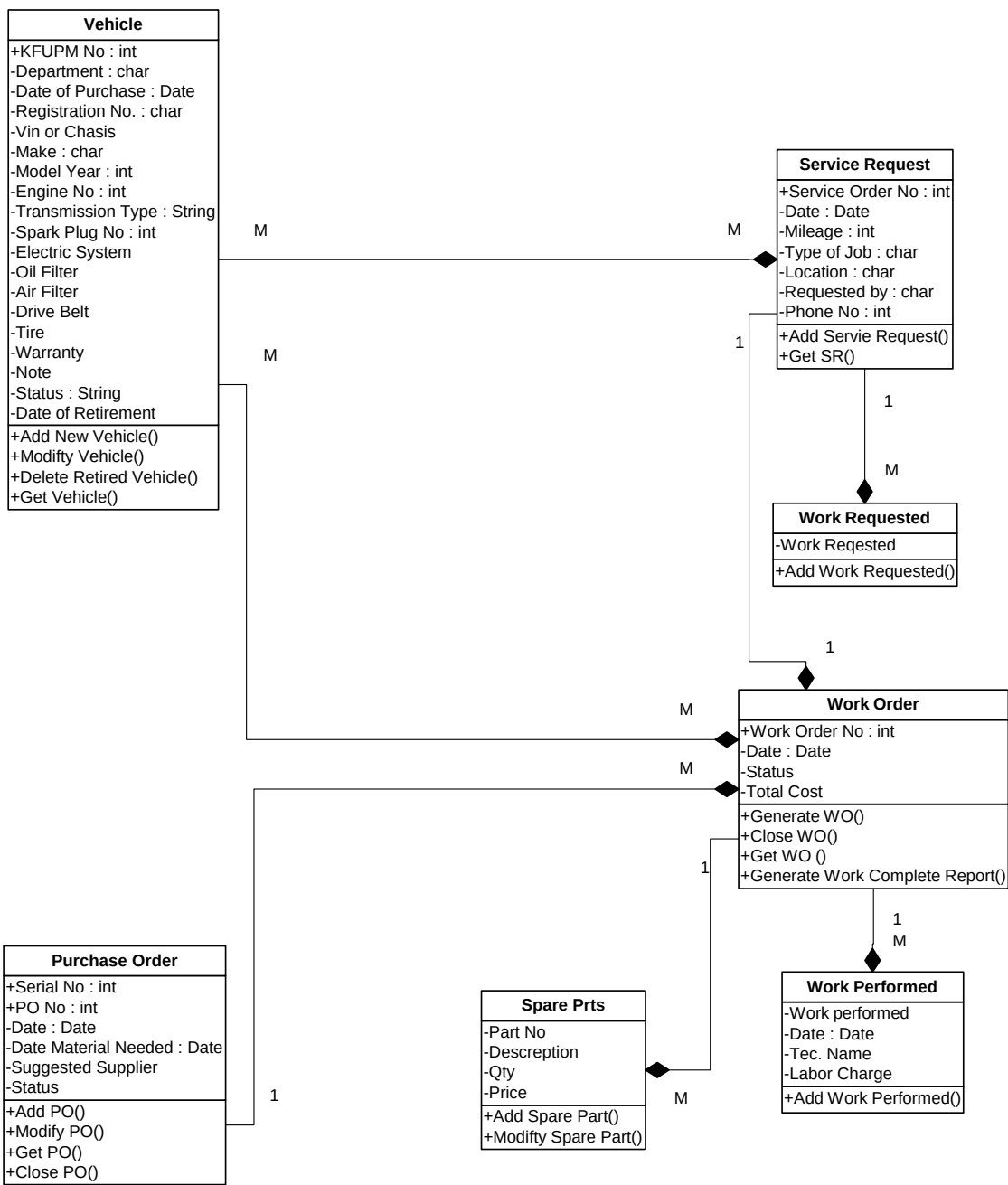
In the event spare parts are needed, the workshop may purchase spare parts with a maximum value of 300 Riyals. However, if the cost of spare parts was above that limit, a Purchase Order (PO) is initiated, given a WMS PO Serial number and sent to KFUPM administrative Affairs who on their side send the PO to KFUPM Purchasing Department.

Activities per WO are tracked (or logged) by the system, and after spare parts are received (or while pending spare parts delivery), other tasks requested are taken care of, and the WO is closed after all tasks are complete.

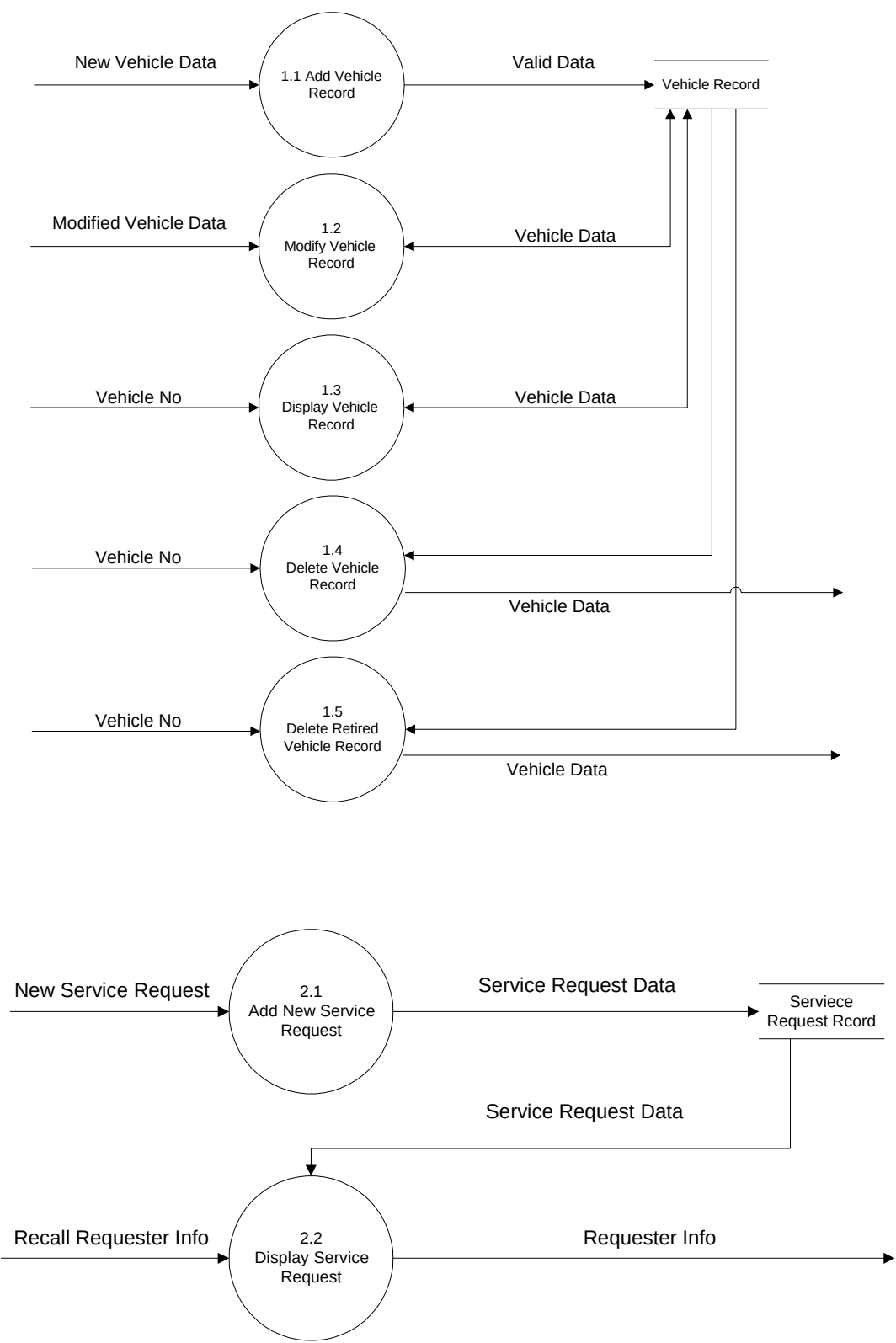
When all work requested is done, the system will generate a work-complete report showing work done, cost of spare parts and labor charges. The report is then sent to the customer as an invoice.

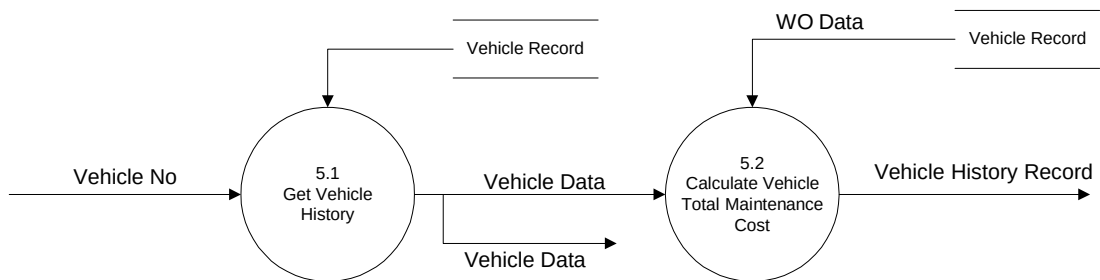
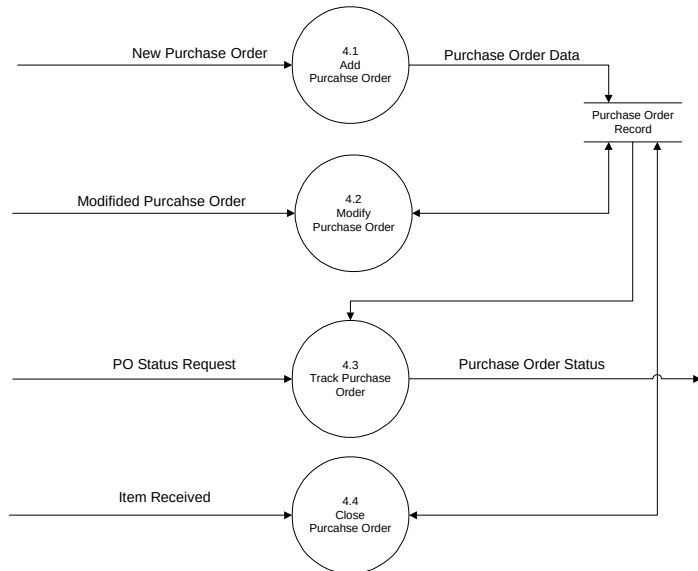
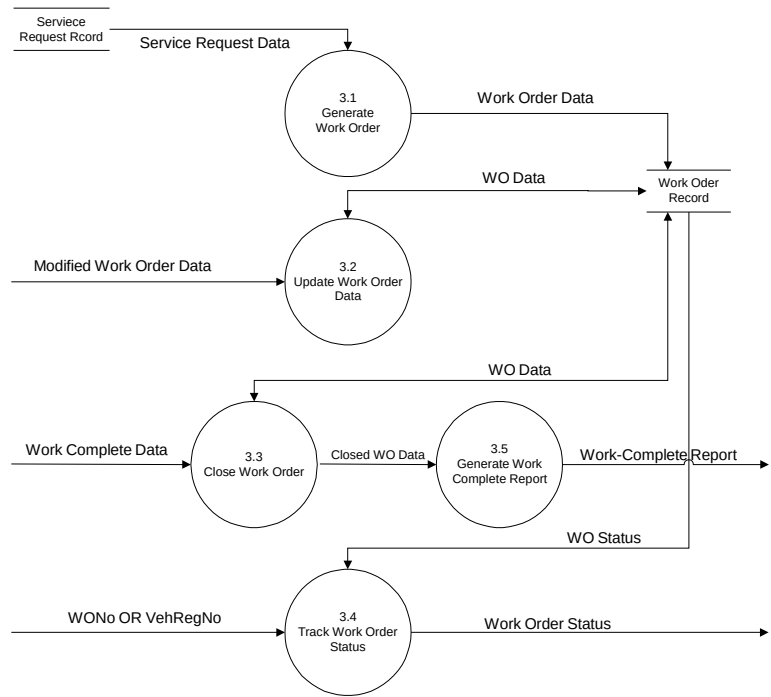
In addition to the above, the system will provide statistical data about various workshop activities and income.

IX. Object Model:



X. Lower Level Data Flow Diagrams:





XI. Component Design:

The proposed system will be composed of 4 components (or modules):

1. Vehicle Component
2. Service Request Component
3. Work Order Component
4. Purchase Order Component

The services provided by each component are as follows:

1. The Vehicle Component will provide the following services:

- a. Addition of new vehicles.
- b. Modification of existing vehicles records.
- c. Displaying existing vehicles records.
- d. Delete vehicles records.
- e. Deleting retired vehicles records.
- f. Listing vehicles serviced per department.

2. The Service Request Component will provide the following services:

- a. Addition of new service requests.
- b. Displaying existing service requests.

3. The Work Order Component will provide the following services:

- a. Generating new work orders based on new service requests.
- b. Updating work orders.
- c. Closing an open work order.
- d. Display work order status.
- e. Generate work-complete report.
- f. Generating and displaying a given vehicle's history.
- g. Calculating a given vehicle total cost of maintenance.
- h. Listing work orders completed in a given range.
- i. Calculating the workshop's income based on complete work orders in a given date range.
- j. Calculating total spare parts cost in a given date range.

4. The Purchase Order Component will provide the following services:

- a. Addition of new purchase order data.
- b. Modifying purchase order data.
- c. Displaying purchase orders.
- d. Closing an open purchase order.

A. Component Interface:

Each component will interface with other components according to the following relations:

Component	Vehicle	Service Request	Work Order	Purchase order
Vehicle	None	Method: GetVehicle() In: Vehicle	Method: GetVehicle() In: Vehicle	Method: GetVehicle() In: Vehicle
Service Request	Method: GetVehicle() In: Vehicle	None	Method: GetSR() In: SR	None
			Method: GenerateWO() In: Work Order	
Work Order	Method: GetVehicle() In: Vehicle	Method: GetSR() In: Service Request	None	Method: GetPO() In: Purchase Order
		Method: GenerateWO() In: Work Order		Method: GetWO() In: Work Order
Purchase Order	Method: GetVehicle() In: Vehicle	None	Method: GetPO() In: Purchase Order	None
			Method: GetWO() In: Work Order	

XII. Data Structure Design:

Vehicle Class:

Attribute	Type	Description
KFUPMNo	Integer	A unique KFUPM number assigned to every vehicle the belongs to KFUPM
Department	String	KFUPM department which the vehicle belongs to
DateOfPurchase	Date	Vehicle's date of purchase
RegistrationNo	String	Vehicle's license plate number
VinOrChassis	String	Vehicle's chassis number
Make	String	Vehicle's type
ModelYear	Integer	Vehicle's model year
EngineNo	String	Vehicle's engine number
TransmissionType	String	Vehicle's transmission type
SparkPlugNo	String	Vehicle's spark plug number
ElectricSystem	String	Vehicle's electric system type
OilFilter	String	Vehicle's oil filter number
AirFilter	String	Vehicle's air filter number
DriveBelt	String	Vehicle's drive belt number
Tire	String	Vehicle's tire number
Warranty	Integer	Vehicle's warranty period (time or mileage)
Note	String	Note about the vehicle
Status	String	Vehicle's current status: active or retired
DateOfRetirement	Date	Vehicle's date of the retirement, if retired

Service Request Class:

Attribute	Type	Description
ServiceRequestNo	Integer	A unique number assigned to every service request
Date	Date	Service request date
Mileage	Integer	Vehicle's mileage-reading
TypeOfJob	String	Type of service requested
Location	String	The location of the vehicle
RequestedBy	String	The name of the requester
PhoneNo	Integer	Vehicle's contact phone number
Vehicle	Vehicle	Vehicle's data

Work Requested Class:

Attribute	Type	Description
ServiceRequestNo	Integer	A unique service request number
WorkRequested	String	Work or service(s) requested

Work Order Class:

Attribute	Type	Description
WorkOrderNo	Integer	A unique work order number
Date	Date	Work order's date
Status	String	Work order's status
TotalCost	Integer	Total cost
Vehicle	Vehicle	Vehicle's data
ServiceRequest	Service Request	Service Request's data
PurchaseOrder	Purchase Order	Purchase Order's data

Work Performed Class

Attribute	Type	Description
WorkOrderNo	Integer	A unique work order number
WorkPerformed	String	Work performed on vehicle
Date	Date	Date of work performed
TechName	String	Name of technician or mechanic who performed the work
LaborCharge	Integer	Labor charge of work performed

Attribute	Type	Description
PartNo	Integer	Spare part number
WorkOrderNo	Integer	Work Order no
Description	String	Spare part description
Quantity	Integer	Quantity of spare part ordered
Price	Integer	Price of spare part

Spare
Parts
Class

Purchase Order Class

Attribute	Type	Description
SerialNo	Integer	A unique purchase order serial number assigned by WMS
PONo	Integer	Purchase order number assigned by Purchasing Department
Date	Date	Purchase order date
DateMaterialNeeded	Date	Date spare part(s) is/are needed
SuggestedSupplier1	String	Suggested supplier 1
SuggestedSupplier2	String	Suggested supplier 2
SuggestedSupplier3	String	Suggested supplier 3
Status	String	Purchase order status: open, closed or pending

XIII. Relational Database Schema:

Vehicle:

<u>KEUPMNo</u>	RegNo	PurchaseDate	Dept	Chassis	Make	YearModel
	EngineNo	TransType	SparkPlugNo	ElectricSys	AirFilter	OilFilter
	DriveBelt	Tire	Warranty	Note	VehStatus	RetireDate

Service Request:

<u>ServiceRequestNo</u>	SRDate	VehicleMilage	JobType	Location	RequestedBy	PhoneNo	VehicleNo
-------------------------	--------	---------------	---------	----------	-------------	---------	-----------

Work Requested:

<u>SRNo</u>	<u>WorkRequested</u>
-------------	----------------------

Work Order:

<u>WorkOrderNo</u>	WODate	WOStatus	TotalCost	VehNo	SNum	Serial
--------------------	--------	----------	-----------	-------	------	--------

Work Performed:

<u>WONo</u>	<u>WorkPerformed</u>	WPDate	TechName	LaborCharge
-------------	----------------------	--------	----------	-------------

Spare Part:

<u>PartNo</u>	<u>WONum</u>	Description	Quantity	Price
---------------	--------------	-------------	----------	-------

Purchase Order:

<u>SerialNo</u>	PurchaseOrderNo	PODate	DateMaterialNeeded	Supplier1	Supplier2	Supplier3	POStatus
-----------------	-----------------	--------	--------------------	-----------	-----------	-----------	----------

XIV. Algorithm Design:

Algorithm design will be based on system components.

1. Vehicle Component:

1.1 Add New Vehicle Record:

```
INPUT: KFUPMNo
WHILE EXIST IN VehicleDB OR NOT QUIT
    DISPLAY: ERROR MESSAGE (Duplicate Record)
    INPUT: KFUPMNo
INPUT: RegNo
IF EXIST IN VehicleDB
    WARNING: Duplicate (RegNo)
    INPUT: Allow Duplicate (RegNo)
    IF NO EXIT
INPUT: [Remaining Vehicle Data]
SAVE
EXIT
```

1.3 Display Vehicle Record:

```
INPUT: KFUPMNo
WHILE NOT EXIST IN VehicleDB OR NOT QUIT
    DISPLAY: ERROR MESSAGE (Not Found)
    INPUT: KFUPMNo
GET: VehicleRecord IN VehicleDB
DISPLAY: VehicleRecord
EXIT
```

1.5 Archive Retired-Vehicle Record(s):

```
GET: CurrentDate
FOR ALL RECORDS IN VehicleDB
    READ: VehicleRecord
    GET: VehStatus
    IF RETIRED
        IF (CurrentDate – RetireDate) > 1 Year
            Delete
    NEXT
EXIT
```

1.2 Modify Vehicle Record:

```
INPUT: KFUPMNo
WHILE NOT EXIST IN VehicleDB OR NOT QUIT
    DISPLAY: ERROR MESSAGE (Not Found)
    INPUT: KFUPMNo
GET VehicleRecord IN VehicleDB
DISPLAY: VehicleRecord
MODIFY: SelectedField(s) IN VehicleRecord
SAVE VehicleRecord
EXIT
```

1.4 Delete Vehicle Record:

```
INPUT: KFUPMNo
WHILE NOT EXIST IN VehicleDB OR NOT QUIT
    DISPLAY: ERROR MESSAGE (Not Found)
    INPUT: KFUPMNo
GET: VehicleRecord IN VehicleDB
DISPLAY: VehicleRecord
CONFIRM: Delete VehicleRecord
    IF YES THEN DELETE
    ELSE EXIT
SAVE
EXIT
```

1.6 List Cars Serviced By Department:

```
INPUT: DepartmentName
WHILE NOT EXIST IN VehicleDB OR NOT QUIT
    DISPLAY: ERROR MESSAGE (Not Found)
    INPUT: DepartmentName
FOR ALL WorkOrders in WorkOrderDB
    IF Vehicle.Dept == DepartmentName
        OUTPUT: VehicleRecord
EXIT
```

2. Track All Service Requests:

2.1 Add New Service Request Record:

```
INPUT: ServiceRequestNo
WHILE EXIST IN ServiceRequestDB OR NOT QUIT
    DISPLAY: ERROR MESSAGE (Duplicate)
    INPUT: ServiceRequestNo
INPUT: KFUPMNo
WHILE NOT EXIST IN VehicleDB OR NOT QUIT
    DISPLAY: ERROR MESSAGE (Not Found)
    INPUT: KFUPMNo
GET: VehicleRecord IN VehicleDB
INPUT: [Remaining ServiceRequest Data]
INPUT: [Work Requested]
OPEN: New WorkOrder
SAVE
EXIT
```

2.2 Display Service Request Record:

```
INPUT: ServiceRequestNo
WHILE NOT EXIST IN ServiceReqDB OR NOT Quit
    DISPLAY: ERROR MESSAGE (Not Found)
    INPUT: ServiceRequestNo
GET: ServiceRequestRecord IN ServiceRequestDB
DISPLAY: ServiceRequestRecord
EXIT
```

2.3 Display Service Request Record:

```
INPUT: ServiceRequestNo
WHILE NOT EXIST IN ServiceRequestDB OR NOT QUIT
    DISPLAY: ERROR MESSAGE (Not Found)
    INPUT: ServiceRequestNo
GET: ServiceRequestRecord IN ServiceRequestDB
DISPLAY: ServiceRequestRecord
EXIT
```

2.4 Delete Service Request Record:

```
INPUT: ServiceRequestNo
WHILE NOT EXIST IN ServiceReqDB OR NOT Quit
    DISPLAY: ERROR MESSAGE (Not Found)
    INPUT: ServiceRequestNo
GET: ServiceRequestRecord IN ServiceRequestDB
CONFIRM: Delete ServiceRequestRecord
    IF YES THEN DELETE
    ELSE EXIT
SAVE
EXIT
```

3. Track All Work Orders:

3.1 Add A New Work Order Record:

```
ADD: New WorkOrderRecord IN WordOrderDB
ASSIGN: New WorkOrderNo
ASSIGN: CurrentDate TO WODate
ASSIGN: OPEN TO WOStatus
ASSIGN: 0 (Zero) TO TotalCost
SAVE
EXIT
```

3.2 Modify Work Order Record:

```
INPUT: WorkOrderNo
WHILE NOT EXIST IN WorkOrderDB OR NOT QUIT
    DISPLAY: ERROR MESSAGE (Not Found)
    INPUT: WorkOrderNo
GET: WorkOrderRecord IN WorkOderDB
INPUT: [WorkPerformedData]
WHILE INPUT: WorkPerformed == TRUE OR NOT
QUIT
    INPUT: WorkPerformed
    TotalCost = TotalCost + LaborCharge
INPUT: SpareParts
WHILE INPUT: SpareParts == TRUE OR NOT QUIT
    INPUT: SpareParts
    TotalCost = TotalCost + Price
SAVE
EXIT
```

3.3 Display Work Order Record:

```
INPUT: WorkOrderNo
WHILE NOT EXIST IN WorkOrderDB OR NOT QUIT
    DISPLAY: ERROR MESSAGE (Not Found)
    INPUT: WorkOrderNo
GET: WorkOrderRecord IN WorkOderDB
DISPLAY: WorkOrderRecord
EXIT
```

3.4 Delete Work Order Record:

```
INPUT: WorkOrderNo
WHILE NOT EXIST IN WorkOrderDB OR NOT QUIT
    DISPLAY: ERROR MESSAGE (Not Found)
    INPUT: WorkOrderNo
GET: WorkOrderRecord IN WorkOderDB
CONFIRM: Delete WorkOrderRecord
    IF YES THEN DELETE
    ELSE EXIT
SAVE
EXIT
```

3.5 Generate Work-Complete Report:

```
INPUT: WorkOrderNo
WHILE NOT EXIST IN WorkOrderDB OR NOT QUIT
    DISPLAY: ERROR MESSAGE (Not Found)
    INPUT: WorkOrderNo
GET: WorkOrderRecord IN WorkOderDB
DISPLAY: WorkOrderRecord
OUTPUT: Selected-Fields IN WorkOrderRecord
EXIT
```

3.6 Generate & Display Vehicle History:

```
INPUT: KFUPMNo OR RegNo
WHILE NOT EXIST IN VehicleDB OR NOT QUIT
    DISPLAY: ERROR MESSAGE (Not Found)
    INPUT: KFUPMNo OR RegNo
GET: VehicleRecord IN VehicleDB
DISPLAY: VehicleRecord
FOR ALL WorkOrders
    IF WorkOrder.VehNo == KFUPMNo
        GET: WorkOrderData
        DISPLAY: WorkOrderData
EXIT
```

3.7 Calculate Vehicle Total Maintenance Cost:

```
INPUT: KFUPMNo OR RegNo
WHILE NOT EXIST IN VehicleDB OR NOT QUIT
    DISPLAY: ERROR MESSAGE (Not Found)
    INPUT: KFUPMNo OR RegNo
GET: VehicleRecord IN VehicleDB
DISPLAY: VehicleRecord
COST = 0
FOR ALL WorkOrders
    IF WorkOrder.VehNo == KFUPMNo
        COST = COST + WorkOrder.TotalCost
DISPLAY: COST
EXIT
```

3.8 List Work Orders Complete By Date Range:

```
INPUT: DateRange
VERIFY: DateRange
WHILE DateRange IN WorkOrderDB OR NOT QUIT
    DISPLAY: ERROR MESSAGE
    INPUT: DateRange
    VERIFY: DateRange
FOR ALL WorkOrders in WorkOrderDB
    IF WODate < UpperLimitDateRange AND
       WODate > LoweLimitDateRange AND
       WOSatus == COMPLETE
        OUTPUT: WorkOrderRecord
EXIT
```

3.9 Calculate Workshop Total Income:

```
INPUT: DateRange
VERIFY: DateRange
WHILE DateRange IN WorkOrderDB OR NOT QUIT
    DISPLAY: ERROR MESSAGE
    INPUT: DateRange
    VERIFY: DateRange
INCOME = 0 (Zero)
FOR ALL WorkOrders in WorkOrderDB
    IF WODate < UpperLimitDateRange AND
       WODate > LoweLimitDateRange AND
       WOSatus == COMPLETE
        INCOME = ICOME + TotalCost
OUTPUT: INCOME
EXIT
```

3.10 Calculate Spare Parts Cost By Date Range:

```
INPUT: DateRange
VERIFY: DateRange
WHILE DateRange IN WorkOrderDB OR NOT QUIT
    DISPLAY: ERROR MESSAGE
    INPUT: DateRange
    VERIFY: DateRange
SPCOST = 0 (Zero)
FOR ALL WorkOrders in WorkOrderDB
    IF WODate < UpperLimitDateRange AND
       WODate > LoweLimitDateRange AND
       WOSatus == COMPLETE
        FOR ALL SpareParts
            IF WorkOrderNo == SparePart.WONum
                SPCOST = SPCOST + SparePart.Price
OUTPUT: INCOME
EXIT
```

4. Track All Purchase Orders:

4.1 Add A New Purchase Order Record:

```
ADD: New PurchaseOrderRecord IN PurchaseOrderDB
ASSIGN: New SerialNo
INPUT: [PurchaseOrderData]
ASSIGN: OPEn TO PStatus
SAVE
EXIT
```

4.2 Modify Purchase Order Record:

```
INPUT: SerialNo
WHILE NOT EXIST IN PurchaseOrderDB OR NOT QUIT
    DISPLAY: ERROR MESSAGE (Not Found)
    INPUT: SerialNo
GET: PurchaseOrderRecord IN PurchaseOrderDB
DISPLAY: PurchaseOrderRecord
MODIFY: SelectedField(s) IN PurchaseOrderRecord
SAVE
EXIT
```

4.3 Display Purchase Order Record:

```
INPUT: PurchaseOrderNo OR SerialNo
WHILE NOT EXIST IN PurchaseOrderDB OR NOT QUIT
    DISPLAY: ERROR MESSAGE (Not Found)
    INPUT: PurchaseOrderNo OR SerialNo
GET: PurchaseOrderRecord IN PurchaseOrderDB
DISPLAY: PurchaseOrderRecord
EXIT
```

4.4 Delete Purchase Order Record:

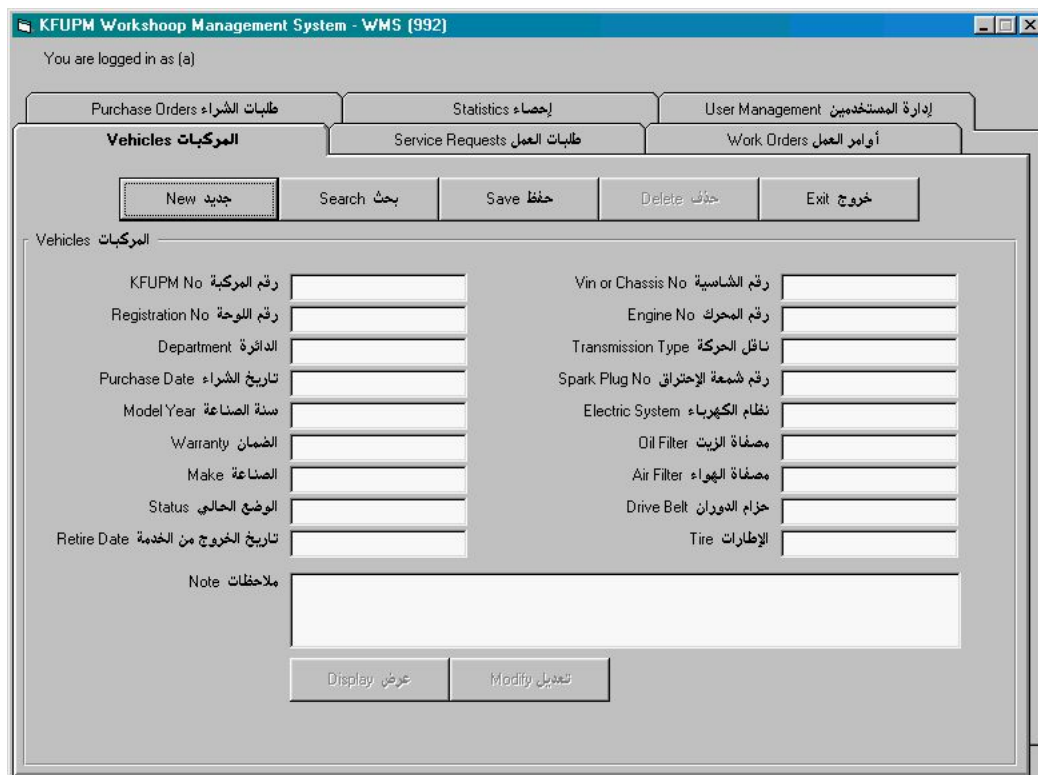
```
INPUT: PurchaseOrderNo OR SerialNo
WHILE NOT EXIST IN PurchaseOrderDB OR NOT QUIT
    DISPLAY: ERROR MESSAGE (Not Found)
    INPUT: PurchaseOrderNo OR SerialNo
GET: PurchaseOrderRecord IN PurchaseOrderDB
CONFIRM: Delete PurchaseOrderRecord
    IF YES THEN DELETE
    ELSE EXIT
SAVE
EXIT
```

XV. User Interface Design:



A small dialog box titled "WMS User Management" with a close button (X). It contains two input fields: "User ID" with the text "Admin" and "Password" with masked characters "xxxxxx". Below the fields are two buttons: "OK تم" and "Cancel خروج".

WMS Main Login Panel



The main interface of the "KFUPM Workshop Management System - WMS [992]". It shows the user is logged in as (a). The interface has a menu bar with "Purchase Orders طلبات الشراء", "Statistics إحصاء", and "User Management إدارة المستخدمين". Below the menu bar are three tabs: "Vehicles المركبات", "Service Requests طلبات العمل", and "Work Orders أوامر العمل". The "Vehicles المركبات" tab is active, showing a form with fields for vehicle information: "KFUPM No رقم المركبة", "Registration No رقم اللوحة", "Department الدائرة", "Purchase Date تاريخ الشراء", "Model Year سنة الصناعة", "Warranty الضمان", "Make الصناعة", "Status الوضعية الحالي", "Retire Date تاريخ الخروج من الخدمة", "Vin or Chassis No رقم الشاسيه", "Engine No رقم المحرك", "Transmission Type ناقل الحركة", "Spark Plug No رقم شمعة الإحتراق", "Electric System نظام الكهرباء", "Oil Filter مضافة الزيت", "Air Filter مضافة الهواء", "Drive Belt حزام الدوران", and "Tire الإطارات". There is also a "Note ملاحظات" text area. At the bottom are "Display عرض" and "Modify تعديل" buttons. Above the form are buttons for "New جديد", "Search بحث", "Save حفظ", "Delete حذف", and "Exit خروج".

Add New Vehicle Panel

KFUPM Workshop Management System - WMS (992)

You are logged in as [a]

Purchase Orders طلبات الشراء Statistics إحصاء User Management إدارة المستخدمين

Vehicles المركبات **Service Requests طلبات العمل** Work Orders أوامر العمل

New جديد Search بحث Save حفظ Delete حذف Exit خروج

Service Requests طلبات العمل

Service Request No رقم طلب العمل Location الموقع

Vehicle Number رقم السيارة Date التاريخ

Job Type نوع العمل Requested By مقدم الطلب

Mileage عدد الكيلومترات Phone No رقم الهاتف

Work Requested العمل المطلوب

Display عرض Modify تعديل

Add New Service Request Panel

KFUPM Workshop Management System - WMS (992)

You are logged in as [a]

Purchase Orders طلبات الشراء Statistics إحصاء User Management إدارة المستخدمين

Vehicles المركبات Service Requests طلبات العمل **Work Orders أوامر العمل**

New جديد Search بحث Save حفظ Delete حذف Exit خروج

Work Orders أوامر العمل

Work Order No رقم أمر العمل Total Cost التكلفة الإجمالية

Vehicle Number رقم السيارة Status الوضع الحالي

Service Request Number رقم طلب العمل Purchase Order NO رقم طلب الشراء

Date التاريخ

Work Performed عمل منجز Spare Parts قطع غيار Display عرض Modify تعديل

Add New Work Order Panel

KFUPM Workshop Management System - WMS [992]

You are logged in as (a)

Vehicles المركبات Service Requests طلبات العمل Work Orders أوامر العمل

Purchase Orders طلبات الشراء Statistics إحصاء User Management إدارة المستخدمين

New جديد Search بحث Save حفظ Delete حذف Exit خروج

Purchase Order أوامر الشراء

WMS Serial No الرقم الخاص Supplier 1 المورد المقترح 1

PO Number رقم طلب الشراء Supplier 2 المورد المقترح 2

PO Date تاريخ طلب الشراء Supplier 3 المورد المقترح 3

Date Needed تاريخ إحتياج المواد Status الوضع الحالي Open

Display عرض Modify تعديل

Add New Purchase Order Panel

KFUPM Workshop Management System - WMS [992]

You are logged in as (a)

Vehicles المركبات Service Requests طلبات العمل Work Orders أوامر العمل

Purchase Orders طلبات الشراء Statistics إحصاء User Management إدارة المستخدمين

UID	PwD	name	level
admin	admin	admin	0
operator	operator	operator	1
guest	guest	guest	2
a	a	a	0
q	q	q	1

User Management Panel

XVI. Technical Documentation:

Tools Used:

1. User Interface: Visual Basic Professional Edition Ver. 6
2. Database Engine: Microsoft SQL 7.0 (running on Microsoft Windows 98)
3. On-Line User Help: Microsoft HTML Help Workshop & Capture Pro. Ver. 3

Source Code:

```
'Open Database Connections
Dim VehCon As ADODB.Connection
Dim SRCon As ADODB.Connection
Dim WRCon As ADODB.Connection
Dim WOCon As ADODB.Connection
Dim WPCOn As ADODB.Connection
Dim SPCon As ADODB.Connection
Dim POCon As ADODB.Connection
Dim UserCon As ADODB.Connection

'Global Variavbles
Dim UserLevel As Integer
Dim UserName As String
Dim Action As Integer
Dim SrAction As Integer
Dim SrStart As Integer
Dim POStart As Integer
Dim POAction As Integer
Dim WOStart As Integer
Dim WOAction As Integer
Dim Starting As Integer

'***** From Load Start *****
Private Sub Form_Activate()
If Starting = 0 Then
    Login.RecordSource = "select * from currentuser"
    Login.Refresh
    UserLevel = Login.Recordset.Fields("level")
    UserName = Login.Recordset.Fields("name")
    UserLabel.Caption = "You are logged in as (" & UserName & ")"
    VehFrame.Visible = True
    If UserLevel > 0 Then
        DataGrid1.Visible = False
    End If
    If UserLevel = 2 Then
        VehTopButton(0).Enabled = False
        VehTopButton(0).Enabled = False
    End If
    Action = 1
    VehNo.Visible = True
    VehReg.Visible = True
    VehDisplay.Enabled = True
    VehFrameTextBox(0).Enabled = True
    VehTopButton(3).Enabled = False
    Call ClearAllVehicleFrameTextBoxes
    sql = "select * from vehicle"
    vehado.RecordSource = sql
    vehado.Refresh
    i = 0
    Do While i <> 19
        VehFrameTextBox(i).Locked = True
        VehFrameTextBox(i).BackColor = &H8000000B
        i = i + 1
    Loop
    VehNo.Visible = True
    VehReg.Visible = True
    VehNo.Locked = False
    VehReg.Locked = False
```

```

    VehModify.Enabled = False
    VehTopButton(2).Enabled = False
    VehDisplay.Enabled = True
    Starting = 1
End If
End Sub

Private Sub Form_Load()
    Starting = 0
    frmMain.Visible = False
    frmUM.Visible = True
    SSTab1.Tab = 0
    VehTopButton(3).Enabled = False
    vehado.Visible = False
    VehNo.Visible = False
    VehReg.Visible = False
    VehDisplay.Enabled = False
    VehFrame.Visible = False
    Dim CS As String
    CS = "Provider=MSDASQL.1;User ID=sa;Data Source=WMS"
    Set VehCon = New ADODB.Connection
    Set SRCon = New ADODB.Connection
    Set WRCon = New ADODB.Connection
    Set WOCon = New ADODB.Connection
    Set WPCon = New ADODB.Connection
    Set SPCon = New ADODB.Connection
    Set POCon = New ADODB.Connection
    Set UserCon = New ADODB.Connection
    VehCon.Open CS
    SRCon.Open CS
    WRCon.Open CS
    WOCon.Open CS
    WPCon.Open CS
    SPCon.Open CS
    POCon.Open CS
    UserCon.Open CS
End Sub

Private Sub Form_Unload(Cancel As Integer)
    VehCon.Close
    SRCon.Close
    WRCon.Close
    WOCon.Close
    WPCon.Close
    SPCon.Close
    POCon.Close
    UserCon.Close
End Sub

Private Sub SSTab1_Click(PreviousTab As Integer)
    If SSTab1.Tab = 1 And WOStart = 0 Then
        SRNo.Visible = True
        SRVehNo.Visible = True
        SRTextBox(0).Visible = False
        SRTextBox(1).Visible = False
        Call ClearSRTextBoxes
        i = 0
        Do While i <> 13
            SRTextBox(i).Locked = True
            SRTextBox(i).BackColor = &H8000000B
            i = i + 1
        Loop
        If UserLevel > 1 Then
            SRButton(0).Enabled = False
        End If
        SRButton(2).Enabled = False
        SRButton(3).Enabled = False
        SRDisplay.Enabled = True
        SrAction = 1
        SrStart = 1

    ElseIf SSTab1.Tab = 3 And POStart = 0 Then
        POSn.Visible = True
        POno.Visible = True
        POTextBox(0).Visible = False
        POTextBox(1).Visible = False
        Call ClearpoTextBoxes
    End If
End Sub

```

```

i = 0
Do While i <> 8
    POTextBox(i).Locked = True
    POTextBox(i).BackColor = &H8000000B
    i = i + 1
Loop
If UserLevel > 1 Then
    POButton(0).Enabled = False
End If
POButton(2).Enabled = False
POButton(3).Enabled = False
PODisplay.Enabled = True
POAction = 1
POStart = 1

ElseIf SSTab1.Tab = 2 Then
    WOno.Visible = True
    WOVno.Visible = True
    WOSrno.Visible = True
    WOTextBox(0).Visible = False
    WOTextBox(1).Visible = False
    WOTextBox(2).Visible = False
    Call ClearWOTextBoxes
    i = 0
    Do While i <> 7
        WOTextBox(i).Locked = True
        WOTextBox(i).BackColor = &H8000000B
        i = i + 1
    Loop
    If UserLevel > 1 Then
        WOButton(0).Enabled = False
    End If
    WOButton(2).Enabled = False
    WOButton(3).Enabled = False
    WODisplay.Enabled = True
    WOWP.Enabled = False
    WOSP.Enabled = False
    WOAction = 1
    WOStart = 1
    SPListframe.Visible = False
    WPListFrame.Visible = False
    SPFrame.Visible = False
    WPFrame.Visible = False
End If

End Sub

*****
***** From Load End *****
*****

Private Sub statEnd_Click()
End
End Sub

Private Sub VehHistory_Click(Index As Integer)
NumOfPOFrame.Visible = False
VehTotalCostFrame.Visible = False
VehHistoryFrame.Visible = True
End Sub

Private Sub NumOfPO_Click(Index As Integer)
    NumOfPOFrame.Visible = True
    VehTotalCostFrame.Visible = False
    VehHistoryFrame.Visible = False
End Sub

Private Sub NumOfPOGo_Click()
    NumOfPOText4.Visible = False
    NumOfPOGrid.Visible = False
    If IsNumeric(NumOfPOText1.Text) = False Then
        MsgBox ("Please Enter a valid vehicle number")
    ElseIf IsDate(NumOfPOText2.Text) = False Or IsDate(NumOfPOText3.Text) = False Then
        MsgBox ("Please Enter a valid Date")
    Else 'If IsNumeric(NumOfPOText1.Text) = True And IsDate(NumOfPOText2.Text) = True And IsDate(NumOfPOText3.Text)
= True Then
        NumOfPOAdo.RecordSource = "select SerialNo[PO Serial No], PurchaseOrderNO[PO No], PODate[PO Date] from
numofpo where[kfupmno]like '" & CStr(NumOfPOText1.Text) & "' and podate >= '" & CStr(NumOfPOText2.Text) & "' and
podate <= '" & CStr(NumOfPOText3.Text) & "'"

```

```

    NumOfPOAdo.Refresh
    If NumOfPOAdo.Recordset.RecordCount > 0 Then
        NumOfPOText4.Visible = True
        NumOfPOText4.Text = NumOfPOAdo.Recordset.RecordCount
        Label7.Visible = True
        NumOfPOGrid.Visible = True
    Else
        MsgBox ("No Records Found!")
    End If
End If
End Sub

Private Sub VehHistoryGo_Click()
    VehHistoryGrid.Visible = False
    VehHistoryPrint.Enabled = False
    If IsNumeric(VehHistoryBox1.Text) = False Then
        MsgBox ("Please enter a valid vehicle number")
    Else
        VehHistoryAdo.RecordSource = "select workorderno[Work Order No], workperformed[Work Performed], wupdate[Date],
techname[Tech Name] from vehhistory where[kfupmno]like '" & CStr(VehHistoryBox1.Text) & "' order by workorderno"
        VehHistoryAdo.Refresh
        If VehHistoryAdo.Recordset.RecordCount > 0 Then
            VehHistoryGrid.Visible = True
            VehHistoryPrint.Enabled = True
        Else
            MsgBox ("No records found")
        End If
    End If
End Sub

Private Sub VehHistoryPrint_Click()
    'Print the title
    m = "King Fahd University of Petroleum & Minerals"
    Printer.CurrentX = (Printer.ScaleWidth / 2) - (2.3 * (TextWidth(m) / 2))
    Printer.CurrentY = 500
    Printer.FontSize = 18
    Printer.Print m
    m = "Vehicles & Heavy Duty Workshop"
    Printer.CurrentX = (Printer.ScaleWidth / 2) - (1.7 * (TextWidth(m) / 2))
    Printer.CurrentY = 1000
    Printer.FontSize = 14
    Printer.Print m
    m = "Vehicle History Report"
    Printer.CurrentX = (Printer.ScaleWidth / 2) - (1.5 * (TextWidth(m) / 2))
    Printer.CurrentY = 1500
    Printer.FontSize = 12
    Printer.FontUnderline = True
    Printer.Print m
    'Print Veh number
    Printer.CurrentX = 2000
    Printer.CurrentY = 3000
    Printer.FontSize = 10
    Printer.FontUnderline = False
    m = "Vehicle Number: " & VehHistoryBox1.Text
    Printer.Print m
    'Print the headings
    Printer.CurrentY = 4000
    Printer.CurrentX = 2000
    Printer.Print "Work Order No"
    Printer.CurrentY = 4000
    Printer.CurrentX = 4000
    Printer.Print "Work Performed"
    Printer.CurrentY = 4000
    Printer.CurrentX = 7000
    Printer.Print "Date"
    Printer.CurrentY = 4000
    Printer.CurrentX = 9000
    Printer.Print "Tech Name"
    Printer.Line (2000, 4300)-(10500, 4300)
    'Print the data
    Printer.CurrentY = 4400
    VehHistoryAdo.Recordset.MoveFirst
    While VehHistoryAdo.Recordset.EOF <> True
        y = Printer.CurrentY
        Printer.CurrentX = 2000
        Printer.Print VehHistoryAdo.Recordset.Fields("work order no")
        Printer.CurrentY = y
    End While
End Sub

```

```

Printer.CurrentX = 4000
Printer.Print VehHistoryAdo.Recordset.Fields("work performed")
Printer.CurrentY = y
Printer.CurrentX = 7000
Printer.Print VehHistoryAdo.Recordset.Fields("date")
Printer.CurrentY = y
Printer.CurrentX = 9000
Printer.Print VehHistoryAdo.Recordset.Fields("tech name")
Printer.Line (2000, Printer.CurrentY + 50)-(10500, Printer.CurrentY + 50)
Printer.CurrentY = Printer.CurrentY + 100
VehHistoryAdo.Recordset.MoveNext
Wend
Printer.EndDoc
End Sub

Private Sub vehTotalCostGo_Click()
VehTotalCostGrid.Visible = False
VehTotalCostBox4.Visible = False
VehTotalCostBox5.Visible = False
VehTotalCostBox6.Visible = False
VehTotalCostPrint.Enabled = False
Label4.Visible = False
Label5.Visible = False
Label6.Visible = False
If IsNumeric(VehTotalCostBox1.Text) = False Then
MsgBox ("Please Enter a valid vehicle number")
ElseIf IsDate(VehTotalCostBox2.Text) = False Or IsDate(VehTotalCostBox3.Text) = False Then
MsgBox ("Please Enter a valid date raange")
Else
VehTotalCostAdo.RecordSource = "select workorderno[Work Order No],wodate[Date], sptotalcost[Spare Parts Total
Cost], labortotalcost[Total Labor Charge], totalcost[Total Cost] from vehTotalcost where[kfupmno]like'" &
CStr(VehTotalCostBox1.Text) & "'and wodate >= '" & CStr(VehTotalCostBox2.Text) & "' and wodate <= '" &
CStr(VehTotalCostBox3.Text) & "'"
VehTotalCostAdo.Refresh
If VehTotalCostAdo.Recordset.RecordCount > 0 Then
VehTotalCostGrid.Visible = True
VehTotalCostBox4.Visible = True
VehTotalCostBox5.Visible = True
VehTotalCostBox6.Visible = True
Label4.Visible = True
Label5.Visible = True
Label6.Visible = True
VehTotalCostPrint.Enabled = True
VehTotalCostAdo.Recordset.MoveFirst
sptotal = 0
While VehTotalCostAdo.Recordset.EOF <> True
sptotal = sptotal + VehTotalCostAdo.Recordset.Fields("Spare Parts total Cost")
VehTotalCostAdo.Recordset.MoveNext
Wend
VehTotalCostBox4.Text = sptotal
VehTotalCostAdo.Recordset.MoveFirst
labortotal = 0
While VehTotalCostAdo.Recordset.EOF <> True
labortotal = labortotal + VehTotalCostAdo.Recordset.Fields("total labor charge")
VehTotalCostAdo.Recordset.MoveNext
Wend
VehTotalCostBox5.Text = labortotal
VehTotalCostBox6.Text = sptotal + labortotal
Else
MsgBox ("No records found")
End If
End If
End Sub

Private Sub TotalCost_Click(Index As Integer)
VehTotalCostFrame.Visible = True
NumOfPOFrame.Visible = False
VehHistoryFrame.Visible = False
End Sub

Private Sub VehTotalCostPrint_Click()
'Print the title
m = "King Fahd University of Petroleum & Minerals"
Printer.CurrentX = (Printer.ScaleWidth / 2) - (2.3 * (TextWidth(m) / 2))
Printer.CurrentY = 500
Printer.FontSize = 18
Printer.Print m

```

```

m = "Vehicles & Heavy Duty Workshop"
Printer.CurrentX = (Printer.ScaleWidth / 2) - (1.7 * (TextWidth(m) / 2))
Printer.CurrentY = 1000
Printer.FontSize = 14
Printer.Print m
m = "Vehicle Total Cost Report"
Printer.CurrentX = (Printer.ScaleWidth / 2) - (1.5 * (TextWidth(m) / 2))
Printer.CurrentY = 1500
Printer.FontSize = 12
Printer.FontUnderline = True
Printer.Print m
'Print Veh number
Printer.CurrentX = 2000
Printer.CurrentY = 3000
Printer.FontSize = 10
Printer.FontUnderline = False
m = "Vehicle Number: " & VehTotalCostBox1.Text
Printer.Print m
Printer.CurrentX = 2000
Printer.CurrentY = 3500
Printer.Print "From: " & VehTotalCostBox2.Text & "    To: " & VehTotalCostBox3.Text
'Print the headings
Printer.CurrentY = 4500
Printer.CurrentX = 2000
Printer.Print "Work Order No"
Printer.CurrentY = 4500
Printer.CurrentX = 4000
Printer.Print "Date"
Printer.CurrentY = 4500
Printer.CurrentX = 5000
Printer.Print "Spare Parts Total Cost"
Printer.CurrentY = 4500
Printer.CurrentX = 7200
Printer.Print "Total Labor Charge"
Printer.CurrentY = 4500
Printer.CurrentX = 9400
Printer.Print "Total Cost"
Printer.Line (2000, 4800)-(10500, 4800)
'Print the data
Printer.CurrentY = 4900
VehTotalCostAdo.Refresh
VehTotalCostAdo.Recordset.MoveFirst
While VehTotalCostAdo.Recordset.EOF <> True
    y = Printer.CurrentY
    Printer.CurrentX = 2000
    Printer.Print VehTotalCostAdo.Recordset.Fields("work order no")
    Printer.CurrentY = y
    Printer.CurrentX = 4000
    Printer.Print VehTotalCostAdo.Recordset.Fields("date")
    Printer.CurrentY = y
    Printer.CurrentX = 5000
    Printer.Print VehTotalCostAdo.Recordset.Fields("Spare parts total cost")
    Printer.CurrentY = y
    Printer.CurrentX = 7200
    Printer.Print VehTotalCostAdo.Recordset.Fields("total labor charge")
    Printer.CurrentY = y
    Printer.CurrentX = 9400
    Printer.Print VehTotalCostAdo.Recordset.Fields("Total Cost")

    Printer.Line (2000, Printer.CurrentY + 50)-(10500, Printer.CurrentY + 50)
    Printer.CurrentY = Printer.CurrentY + 100
    VehTotalCostAdo.Recordset.MoveNext
Wend
y = Printer.CurrentY
Printer.CurrentX = 2000
Printer.Print "Total"
Printer.CurrentX = 5000
Printer.CurrentY = y
Printer.Print VehTotalCostBox4.Text
Printer.CurrentY = y
Printer.CurrentX = 7200
Printer.Print VehTotalCostBox5.Text
Printer.CurrentY = y
Printer.CurrentX = 9400
Printer.Print VehTotalCostBox6.Text

Printer.EndDoc

```

End Sub

```
'*****  
'***** WORK ORDERS START *****  
'*****
```

```
Private Sub WPSave_Click()  
    If WPTextBox(0).Text <> "" Or WPTextBox(1).Text <> "" Or WPTextBox(2).Text <> "" Or WPTextBox(3).Text <> "" Then  
        If WOTextBox(0).Text <> "" And IsNumeric(WOTextBox(0).Text) = False Then  
            MsgBox ("Please enter a valid " + WOLabel(0))  
        ElseIf WPTextBox(0).Text <> "" And IsDate(WPTextBox(0).Text) = False Then  
            MsgBox ("Enter Date like (dd/mm/yy) in " + WPLabel(0))  
        ElseIf WPTextBox(3).Text <> "" And IsNumeric(WPTextBox(3).Text) = False Then  
            MsgBox ("Please enter a valid " + WPLabel(3))  
        Else  
            WPAdo.RecordSource = "select * from workperformed"  
            WPAdo.Refresh  
            With WPAdo.Recordset  
                .AddNew  
                If WOTextBox(0).Text <> "" Then  
                    .Fields("wono") = WOTextBox(0).Text  
                End If  
                If WPTextBox(0).Text <> "" Then  
                    .Fields("wupdate") = WPTextBox(0).Text  
                End If  
                .Fields("workperformed") = WPTextBox(1).Text  
                .Fields("techname") = WPTextBox(2).Text  
                If WPTextBox(3).Text <> "" Then  
                    .Fields("laborcharge") = WPTextBox(3).Text  
                    WPAdo.Recordset.Fields("laborTotalCost") = WPAdo.Recordset.Fields("laborTotalCost") +  
CInt(WPTextBox(3).Text)  
                    WPAdo.Recordset.Update  
                End If  
                .Update  
            End With  
            i = 0  
            Do While i <> 4  
                WPTextBox(i).Text = ""  
                i = i + 1  
            Loop  
        End If  
    Else  
        MsgBox ("No Work Performed has been entered")  
    End If  
    WOTextBox(7).Text = CStr(WPAdo.Recordset.Fields("sptotalcost") + WPAdo.Recordset.Fields("labortotalcost"))  
    WPTextBox(3).Text = 0  
End Sub
```

```
Private Sub spSave_Click()  
    If SPTextBox(0).Text <> "" Or SPTextBox(1).Text <> "" Or SPTextBox(2).Text <> "" Or SPTextBox(3).Text <> "" Then  
        If WOTextBox(0).Text = "" And IsNumeric(WOTextBox(0).Text) = False Then  
            MsgBox ("Please enter a valid " + WOLabel(0))  
        ElseIf SPTextBox(0).Text <> "" And IsNumeric(SPTextBox(0).Text) = False Then  
            MsgBox ("Please enter a valid " + SPLabel(0))  
        ElseIf SPTextBox(0).Text <> "" And IsNumeric(SPTextBox(0).Text) = False Then  
            MsgBox ("Please enter a valid " + SPLabel(0))  
        ElseIf SPTextBox(0).Text <> "" And IsNumeric(SPTextBox(0).Text) = False Then  
            MsgBox ("Please enter a valid " + SPLabel(0))  
        Else  
            SPAdo.RecordSource = "select * from sparepart"  
            SPAdo.Refresh  
            With SPAdo.Recordset  
                .AddNew  
                If WOTextBox(0).Text <> "" Then  
                    .Fields("wonum") = WOTextBox(0).Text  
                End If  
                If SPTextBox(0).Text <> "" Then  
                    .Fields("partno") = SPTextBox(0).Text  
                End If  
                .Fields("description") = SPTextBox(1).Text  
                If SPTextBox(2).Text <> "" Then  
                    .Fields("quantity") = SPTextBox(2).Text  
                End If  
                If SPTextBox(3).Text <> "" Then  
                    .Fields("price") = SPTextBox(3).Text  
                    WPAdo.Recordset.Fields("SPTotalCost") = WPAdo.Recordset.Fields("SPTotalCost") + (SPTextBox(2).Text *  
SPTextBox(3).Text)
```

```

        WADO.Recordset.Update
    End If
    .Update
End With
i = 0
Do While i <> 4
    SPTextBox(i).Text = ""
    i = i + 1
Loop
End If
Else
    MsgBox ("No Spare Part has been entered")
End If
WOTextBox(7).Text = CStr(WADO.Recordset.Fields("sptotalcost") + WADO.Recordset.Fields("labortotalcost"))
SPTextBox(2).Text = 1
SPTextBox(3).Text = 0
End Sub

```

```

Private Sub WOWP_Click()
    WADO.RecordSource = "select * from workorder where[workorderno]like'" & CStr(WOTextBox(0).Text) & ""
    WADO.Refresh
    If WOAction = 0 Then
        SPFrame.Visible = False
        WPFrame.Visible = True
    ElseIf WOAction = 1 Then
        WPAO.RecordSource = "select * from workperformed where[wono]like'" & CStr(WOTextBox(0).Text) & ""
        WPAO.Refresh
        If WPAO.Recordset.RecordCount > 0 Then
            SPListframe.Visible = False
            WPListFrame.Visible = True
            WPFrame.Visible = False
            SPFrame.Visible = False
            WPList.Enabled = False
            If UserLevel > 1 Then
                WPAAdd.Enabled = False
            End If
        Else
            ans = MsgBox("No Work Performed for this Work Order. Do you want to add one?", 524324)
            If ans = 6 Then
                If UserLevel < 2 Then
                    WPListFrame.Visible = False
                    WPFrame.Visible = True
                    SPFrame.Visible = False
                    SPListframe.Visible = False
                Else
                    MsgBox ("You are not allowed to do this operation!")
                End If
            End If
        End If
    End If
End Sub

```

```

End Sub

```

```

Private Sub WPAAdd_Click()
    WPListFrame.Visible = False
    WPFrame.Visible = True
    SPFrame.Visible = False
    SPListframe.Visible = False
End Sub

```

```

Private Sub WPList_Change()
    WOTextBox(7).Text = CStr(WADO.Recordset.Fields("sptotalcost") + WADO.Recordset.Fields("labortotalcost"))
End Sub

```

```

Private Sub WOSP_Click()
    WADO.RecordSource = "select * from workorder where[workorderno]like'" & CStr(WOTextBox(0).Text) & ""
    WADO.Refresh
    If WOAction = 0 Then
        WPFrame.Visible = False
        SPFrame.Visible = True
    ElseIf WOAction = 1 Then
        SPADO.RecordSource = "select * from sparepart where[WONum]like'" & CStr(WOTextBox(0).Text) & ""
        SPADO.Refresh
        If SPADO.Recordset.RecordCount > 0 Then
            WPListFrame.Visible = False
            SPListframe.Visible = True
            SPFrame.Visible = False
        End If
    End If
End Sub

```

```

        SPList.Enabled = False
        If UserLevel > 1 Then
            SPAdd.Enabled = False
        End If
    Else
        ans = MsgBox("No Spare Pparts for this Work Order. Do you want to add one?", 524324)
        If ans = 6 Then
            If UserLevel < 2 Then
                SPListframe.Visible = False
                SPFrame.Visible = True
                WPFrame.Visible = False
                WPListFrame.Visible = False
            Else
                MsgBox ("You are not allowed to do this operation!")
            End If
        End If
    End If
End If

End Sub

Private Sub SPAdd_Click()
    SPListframe.Visible = False
    SPFrame.Visible = True
    WPFrame.Visible = False
    WPListFrame.Visible = False
End Sub

Private Sub SPList_Change()
    WOTextBox(7).Text = CStr(WOAdo.Recordset.Fields("sptotalcost") + WOAdo.Recordset.Fields("labortotalcost"))
End Sub

Private Sub WOAdo_MoveComplete(ByVal adReason As ADODB.EventReasonEnum, ByVal pError As ADODB.Error, adStatus As ADODB.EventStatusEnum, ByVal pRecordset As ADODB.Recordset)
    If WOAdo.Recordset.RecordCount > 0 And WOAdo.Recordset.EOF <> True And WOAdo.Recordset.BOF <> True And WOAction = 1 And WOAdo.Visible = True Then
        WOTextBox(7).Text = CStr(WOAdo.Recordset.Fields("sptotalcost") + WOAdo.Recordset.Fields("labortotalcost"))
    End If
    If WOAdo.Recordset.RecordCount > 1 And WOAdo.Recordset.EOF <> True And WOAdo.Recordset.BOF <> True Then
        WOAdo.Caption = "Record " & WOAdo.Recordset.AbsolutePosition & " of " & WOAdo.Recordset.RecordCount
    End If
End Sub

Private Sub WODisplay_Click()
    Dim sql As String
    Call ClearWODatafeilds
    If WOno.Text <> "" Then
        sql = "select * from workorder where[workorderno]like" & CStr(WOno.Text) & ""
        WOAdo.RecordSource = sql
        WOAdo.Refresh
        If WOAdo.Recordset.RecordCount > 0 Then
            Call SetWODataFeilds
            WOTextBox(7).Text = CStr(WOAdo.Recordset.Fields("sptotalcost") + WOAdo.Recordset.Fields("labortotalcost"))
        Else
            MsgBox ("Work Order number not found")
        End If
    ElseIf WOVno.Text <> "" Then
        sql = "select * from workorder where[vehno]like" & CStr(WOVno.Text) & ""
        WOAdo.RecordSource = sql
        WOAdo.Refresh
        If WOAdo.Recordset.RecordCount > 0 Then
            Call SetWODataFeilds
            WOTextBox(7).Text = CStr(WOAdo.Recordset.Fields("sptotalcost") + WOAdo.Recordset.Fields("labortotalcost"))
            If WOAdo.Recordset.RecordCount > 1 Then
                WOAdo.Visible = True
            End If
        Else
            MsgBox ("Vehicle number not found")
        End If
    ElseIf WOSrno.Text <> "" Then
        sql = "select * from workorder where[srnum]like" & CStr(WOSrno.Text) & ""
        WOAdo.RecordSource = sql
        WOAdo.Refresh
        If WOAdo.Recordset.RecordCount > 0 Then
            Call SetWODataFeilds
            WOTextBox(7).Text = CStr(WOAdo.Recordset.Fields("sptotalcost") + WOAdo.Recordset.Fields("labortotalcost"))
        End If
    End If
End Sub

```

```

        If WOAdo.Recordset.RecordCount > 1 Then
            WOAdo.Visible = True
        End If
    Else
        MsgBox ("Service Request number not found")
    End If
End If
If (WOno.Text <> "" Or WOVno.Text <> "" Or WOSrno.Text <> "") And WOAdo.Recordset.RecordCount > 0 Then
    i = 0
    Do While i <> 7
        WOTextBox(i).Locked = True
        WOTextBox(i).BackColor = &H80000009
        WOTextBox(i).Visible = True
        i = i + 1
    Loop
    WOno.Locked = True
    WOVno.Locked = True
    WOSrno.Locked = True
    WOModify.Enabled = True
    WODisplay.Enabled = False
    WOno.Visible = False
    WOVno.Visible = False
    WOSrno.Visible = False
    WOWP.Enabled = True
    WOSP.Enabled = True
    If UserLevel = 2 Then
        WOModify.Enabled = False
    End If
End If
End Sub

Private Sub WOModify_Click()
    i = 0
    Do While i <> 7
        WOTextBox(i).Locked = False
        WOTextBox(i).BackColor = &H80000009
        i = i + 1
    Loop
    WOno.Locked = False
    WOVno.Locked = False
    WOSrno.Locked = False
    WOButton(2).Enabled = True
    WOTextBox(0).Enabled = False
    WOButton(3).Enabled = True
    WPList.Enabled = True
    SPList.Enabled = True
End Sub

Private Sub WOno_Click()
    Dim break As Boolean
    Dim sql As String
    break = False
    Call ClearWODatafeilds
    If WOno.Text <> "" Then
        sql = "select * from workorder where[workorderno]like" & CStr(WOno.Text) & ""
        WOAdo.RecordSource = sql
        WOAdo.Refresh
        If WOAdo.Recordset.RecordCount > 0 Then
            Call SetWODataFeilds
            WOTextBox(7).Text = CStr(WOAdo.Recordset.Fields("sptotalcost") + WOAdo.Recordset.Fields("labortotalcost"))
        End If
        i = 0
        Do While i <> 7
            WOTextBox(i).Locked = True
            WOTextBox(i).BackColor = &H80000009
            i = i + 1
        Loop
        WOno.Locked = True
        WOVno.Locked = True
        WOSrno.Locked = True
        WOModify.Enabled = True
        WODisplay.Enabled = False
        WOno.Visible = False
        WOVno.Visible = False
        WOSrno.Visible = False
        WOTextBox(0).Visible = True
        WOTextBox(1).Visible = True
    End If
End Sub

```

```

WOTextBox(2).Visible = True
WOWP.Enabled = True
WOSP.Enabled = True

If UserLevel = 2 Then
    WOModify.Enabled = False
End If
End If
End Sub

Private Sub WONo_DropDown()
    Call ClearWODatafeilds
    WOno.Clear
    WOAdo.RecordSource = "select * from workorder order by workorderno"
    WOAdo.Refresh
    While WOAdo.Recordset.EOF <> True
        WOno.AddItem (WOAdo.Recordset.Fields("workorderno"))
        WOAdo.Recordset.MoveNext
    Wend
    WODisplay.Enabled = True
End Sub

Private Sub WOVNo_Click()
    Dim break As Boolean
    Dim sql As String
    break = False
    Call ClearWODatafeilds
    If WOVno.Text <> "" And WOAction = 1 Then
        sql = "select * from workorder where[vehno]like" & CStr(WOVno.Text) & ""
        WOAdo.RecordSource = sql
        WOAdo.Refresh
        If WOAdo.Recordset.RecordCount > 0 Then
            Call SetWODataFeilds
            WOTextBox(7).Text = CStr(WOAdo.Recordset.Fields("sptotalcost") + WOAdo.Recordset.Fields("labortotalcost"))
        End If
        If WOAdo.Recordset.RecordCount > 1 Then
            WOAdo.Visible = True
        End If
        i = 0
        Do While i <> 7
            WOTextBox(i).Locked = True
            WOTextBox(i).BackColor = &H80000009
            i = i + 1
        Loop
        WOno.Locked = True
        WOVno.Locked = True
        WOSrno.Locked = True
        WOModify.Enabled = True
        WODisplay.Enabled = False
        WOno.Visible = False
        WOVno.Visible = False
        WOSrno.Visible = False
        WOTextBox(0).Visible = True
        WOTextBox(1).Visible = True
        WOTextBox(2).Visible = True
        WOWP.Enabled = True
        WOSP.Enabled = True

        If UserLevel = 2 Then
            WOModify.Enabled = False
        End If
    End If
End Sub

Private Sub WOVNo_dropdown()
    Call ClearWODatafeilds
    WOVno.Clear
    If WOAction = 0 Then
        WOVno.Enabled = True
        vehado.RecordSource = "select * from vehicle order by kfupmno"
        vehado.Refresh
        While vehado.Recordset.EOF <> True
            WOVno.AddItem (vehado.Recordset.Fields("kfupmno"))
            vehado.Recordset.MoveNext
        Wend
    ElseIf WOAction = 1 Then
        WOAdo.RecordSource = "select distinct vehno from workorder order by vehno"
    End If
End Sub

```

```

WOAdo.Refresh
If WOAdo.Recordset.RecordCount > 0 Then
While WOAdo.Recordset.EOF <> True
    WOVno.AddItem (WOAdo.Recordset.Fields("vehno"))
    WOAdo.Recordset.MoveNext
Wend
End If
End If
End Sub

Private Sub WOSRno_Click()
Dim break As Boolean
Dim sql As String
break = False
Call ClearWODatafeilds
If WOSrno.Text <> "" And WOAction = 1 Then
    sql = "select * from workorder where[srnum]like" & CStr(WOSrno.Text) & ""
    WOAdo.RecordSource = sql
    WOAdo.Refresh
    If WOAdo.Recordset.RecordCount > 0 Then
        Call SetWODataFeilds
        WOTextBox(7).Text = CStr(WOAdo.Recordset.Fields("sptotalcost") + WOAdo.Recordset.Fields("labortotalcost"))
    End If
    If WOAdo.Recordset.RecordCount > 1 Then
        WOAdo.Visible = True
    End If
    i = 0
    Do While i <> 7
        WOTextBox(i).Locked = True
        WOTextBox(i).BackColor = &H80000009
        i = i + 1
    Loop
    WOno.Locked = True
    WOVno.Locked = True
    WOSrno.Locked = True
    WOModify.Enabled = True
    WODisplay.Enabled = False
    WOno.Visible = False
    WOVno.Visible = False
    WOSrno.Visible = False
    WOTextBox(0).Visible = True
    WOTextBox(1).Visible = True
    WOTextBox(2).Visible = True
    WOWP.Enabled = True
    WOSP.Enabled = True

    If UserLevel = 2 Then
        WOModify.Enabled = False
    End If
End If
End Sub

Private Sub WOSRno_dropdown()
Call ClearWODatafeilds
WOSrno.Clear
If WOAction = 0 Then
    WOSrno.Enabled = True
    SRAdo.RecordSource = "select * from servicerequest order by servicerequestno"
    SRAdo.Refresh
    While SRAdo.Recordset.EOF <> True
        WOSrno.AddItem (SRAdo.Recordset.Fields("servicerequestno"))
        SRAdo.Recordset.MoveNext
    Wend
ElseIf WOAction = 1 Then
    WOAdo.RecordSource = "select distinct srnum from workorder order by srnum"
    WOAdo.Refresh
    If WOAdo.Recordset.RecordCount > 0 Then
        While WOAdo.Recordset.EOF <> True
            WOSrno.AddItem (WOAdo.Recordset.Fields("srnum"))
            WOAdo.Recordset.MoveNext
        Wend
    End If
End If
End Sub

Private Sub WOButton_Click(Index As Integer)
Dim sql As String
Dim i As Integer

```

Dim empt As Boolean
Dim duplicate As Boolean

' New

```
If Index = 0 Then
    Call ClearWODatafeilds
    Call ClearWOTextBoxes
    WOAction = 0
    WOADo.Visible = False
    WOno.Visible = False
    WODisplay.Enabled = False
    WOButton(2).Enabled = True
    WOButton(3).Enabled = False
    WOTextBox(0).Visible = True
    WOTextBox(0).Enabled = True
    WOTextBox(1).Visible = False
    WOVno.Visible = True
    WOSrno.Visible = True
    WOVno.Locked = False
    WOSrno.Locked = False
    WOModify.Enabled = False
    WOWP.Enabled = False
    WOSP.Enabled = False
    WPListFrame.Visible = False
    WPFrame.Visible = False
    SPListframe.Visible = False
    SPFrame.Visible = False

    WOADo.RecordSource = "select * from workorder"
    WOADo.Refresh
    i = 0
    Do While i <> 7
        WOTextBox(i).Locked = False
        WOTextBox(i).BackColor = &H80000009
        i = i + 1
    Loop
    vehado.RecordSource = "select * from vehicle"
    vehado.Refresh
    While vehado.Recordset.EOF <> True
        WOVno.AddItem (vehado.Recordset.Fields("kfupmno"))
        vehado.Recordset.MoveNext
    Wend
    SRAdo.RecordSource = "select * from servicerequest"
    SRAdo.Refresh
    While SRAdo.Recordset.EOF <> True
        WOSrno.AddItem (SRAdo.Recordset.Fields("servicerequestno"))
        SRAdo.Recordset.MoveNext
    Wend
```

' Search

```
ElseIf Index = 1 Then
    Call ClearWODatafeilds
    WOAction = 1
    WOADo.Visible = False
    WOno.Visible = True
    WOVno.Visible = True
    WOSrno.Visible = True
    WODisplay.Enabled = True
    WOButton(2).Enabled = False
    WOButton(3).Enabled = False
    WOWP.Enabled = False
    WOSP.Enabled = False
    WPListFrame.Visible = False
    WPFrame.Visible = False
    SPListframe.Visible = False
    SPFrame.Visible = False
```

```
Call ClearWOTextBoxes
WOAdo.RecordSource = "select * from workorder"
WOAdo.Refresh
i = 0
Do While i <> 7
    WOTextBox(i).Locked = True
    WOTextBox(i).BackColor = &H8000000B
    i = i + 1
Loop
```

```

WOno.Visible = True
WOVno.Visible = True
WOSrno.Visible = True
WOno.Locked = False
WOVno.Locked = False
WOSrno.Locked = False
WOModify.Enabled = False
WOButton(3).Enabled = False
Call ClearWOTextBoxes
' Save
Elseif Index = 2 Then
    If WOAction = 0 Then
        WOAdo.Refresh
        vehado.RecordSource = "select * from vehicle"
        vehado.Refresh
        Dim vehfound As Boolean
        vehfound = False
        While vehado.Recordset.EOF <> True And vehfound <> True
            If vehado.Recordset.Fields("kfupmno") = WOVno.Text Then
                vehfound = True
            Else
                vehado.Recordset.MoveNext
            End If
        Wend
        SRAdo.RecordSource = "select * from servicerequest"
        SRAdo.Refresh
        Dim srfound As Boolean
        srfound = False
        While SRAdo.Recordset.EOF <> True And srfound <> True
            If SRAdo.Recordset.Fields("servicerequestno") = WOSrno.Text Then
                srfound = True
            Else
                SRAdo.Recordset.MoveNext
            End If
        Wend
        duplicate = False
        While WOAdo.Recordset.EOF <> True And duplicate = False
            If WOAdo.Recordset.Fields("workorderno") = WOTextBox(0).Text Then
                duplicate = True
            Else
                WOAdo.Recordset.MoveNext
            End If
        Wend
        If WOTextBox(0).Text = "" Or WOTextBox(0).Text = " " Then
            MsgBox ("Enter " + WOLabel(0).Caption)
        Elseif IsNumeric(WOTextBox(0).Text) = False Then
            MsgBox ("Invalid Service Request Number")
        Elseif WOVno.Text = "" Or WOVno.Text = " " Then
            MsgBox ("Enter " + WOLabel(1).Caption)
        Elseif WOSrno.Text = "" Or WOSrno.Text = " " Then
            MsgBox ("Enter " + WOLabel(2).Caption)
        Elseif empt = False And duplicate = True Then
            MsgBox ("Duplicate Work Order Number")
        Elseif WOTextBox(3).Text <> "" And IsDate(WOTextBox(3).Text) = False Then
            MsgBox ("Enter Date like (dd/mm/yy) in " + WOLabel(3))
        Elseif WOTextBox(4).Text <> "" And IsNumeric(WOTextBox(4).Text) = False Then
            MsgBox ("Please enter a valid " + WOLabel(4))
        Elseif WOTextBox(6).Text <> "" And IsNumeric(WOTextBox(6).Text) = False Then
            MsgBox ("Please enter a valid " + WOLabel(6))
        Elseif vehado.Recordset.EOF = True Then
            MsgBox ("Invalid Vehicle Number")
        Elseif SRAdo.Recordset.EOF = True Then
            MsgBox ("Invalid Service Request Number")
        Else
            With WOAdo.Recordset
                .AddNew
                .Fields("workorderno") = WOTextBox(0).Text
                .Fields("vehno") = WOVno.Text
                .Fields("srnum") = WOSrno.Text
                If WOTextBox(3).Text <> "" Then
                    .Fields("wodate") = WOTextBox(3).Text
                End If
                If WOTextBox(4).Text <> "" Then
                    .Fields("totalcost") = WOTextBox(4).Text
                End If
                .Fields("wostatus") = WOTextBox(5).Text
                If WOTextBox(6).Text <> "" Then

```

```

        .Fields("poserial") = WOTextBox(6).Text
    End If
    .Update
End With
WOWP.Enabled = True
WOSP.Enabled = True

End If
End If
If WOAction = 1 Then
    vehado.RecordSource = "select * from vehicle"
    vehado.Refresh
    vehfound = False
    While vehado.Recordset.EOF <> True And vehfound <> True
        If vehado.Recordset.Fields("kfupmno") = WOVno.Text Then
            vehfound = True
        Else
            vehado.Recordset.MoveNext
        End If
    Wend
    SRAdo.RecordSource = "select * from servicerequest"
    SRAdo.Refresh
    srfound = False
    While SRAdo.Recordset.EOF <> True And srfound <> True
        If SRAdo.Recordset.Fields("servicerequestno") = WOSrno.Text Then
            srfound = True
        Else
            SRAdo.Recordset.MoveNext
        End If
    Wend
    If WOTextBox(0).Text = "" Or WOTextBox(0).Text = " " Then
        MsgBox ("Enter " + WOLabel(0).Caption)
    ElseIf IsNumeric(WOTextBox(0).Text) = False Then
        MsgBox ("Invalid Service Request Number")
    ElseIf WOVno.Text = "" Or WOVno.Text = " " Then
        MsgBox ("Enter " + WOLabel(1).Caption)
    ElseIf WOSrno.Text = "" Or WOSrno.Text = " " Then
        MsgBox ("Enter " + WOLabel(2).Caption)
    ElseIf WOTextBox(3).Text <> "" And IsDate(WOTextBox(3).Text) = False Then
        MsgBox ("Enter Date like (dd/mm/yy) in " + WOLabel(3))
    ElseIf WOTextBox(4).Text <> "" And IsNumeric(WOTextBox(4).Text) = False Then
        MsgBox ("Please enter a valid " + WOLabel(4))
    ElseIf WOTextBox(6).Text <> "" And IsNumeric(WOTextBox(6).Text) = False Then
        MsgBox ("Please enter a valid " + WOLabel(6))
    ElseIf vehado.Recordset.EOF = True Then
        MsgBox ("Invalid Vehicle Number")
    ElseIf SRAdo.Recordset.EOF = True Then
        MsgBox ("Invalid Service Request Number")
    Else
        WOAdo.Recordset.Update
        WOAdo.Refresh
        MsgBox ("Work Order Updated")
    End If
End If
' Delete
ElseIf Index = 3 Then
    WODisplay.Enabled = False
    ans = MsgBox("Are you sure you want to delete Service Request " & WOAdo.Recordset.Fields("workorderno"),
524324)
    If ans = 6 Then
        WOCon.Execute "delete from workorder where[workorderno]like'" & CStr(WOTextBox(0).Text) & "'"
        WOCon.Execute "delete from workperformed where[wono]like'" & CStr(WOTextBox(0).Text) & "'"
        WOCon.Execute "delete from sparepart where[wonum]like'" & CStr(WOTextBox(0).Text) & "'"
        i = 0
        Do While i <> 7
            WOTextBox(i).Locked = True
            WOTextBox(i).BackColor = &H8000000B
            i = i + 1
        Loop
        WOno.Locked = False
        WOVno.Locked = False
        WOSrno.Locked = False
        WOButton(2).Enabled = False
        WOModify.Enabled = False
        WODisplay.Enabled = True
        WOno.Visible = True
        WOVno.Visible = True
    End If
End If

```

```

        WOSrno.Visible = True
        WOButton(3).Enabled = False
        WOWP.Enabled = True
        WOSP.Enabled = True
        WOAdo.Visible = False
        Call ClearWOTextBoxes
        SPListframe.Visible = False
        WPListFrame.Visible = False
    End If
' Exit
    ElseIf Index = 4 Then
        UserCon.Execute "delete from currentuser"
    End
End If
End Sub

Private Sub ClearWOTextBoxes()
    WOno.Text = ""
    WOVno.Text = ""
    WOSrno.Text = ""
    Dim i As Integer
    i = 0
    Do While i <> 8
        WOTextBox(i).Text = ""
        i = i + 1
    Loop
End Sub

Private Sub ClearWODatafeilds()
    WOno.DataField = ""
    WOVno.DataField = ""
    WOSrno.DataField = ""
    i = 0
    Do While i <> 7
        WOTextBox(i).DataField = ""
        i = i + 1
    Loop
End Sub

Private Sub SetWODataFeilds()
    WOno.DataField = "workorderno"
    WOVno.DataField = "vehno"
    WOSrno.DataField = "srnum"
    WOTextBox(0).DataField = "workorderno"
    WOTextBox(1).DataField = "vehno"
    WOTextBox(2).DataField = "srnum"
    WOTextBox(3).DataField = "wodate"
    WOTextBox(4).DataField = "totalcost"
    WOTextBox(5).DataField = "wostatus"
    WOTextBox(6).DataField = "poserial"
End Sub

'***** WORK ORDERS END *****
'***** Purchase Order Start *****

Private Sub poDisplay_Click()
    Dim sql As String
    Call ClearpoDatafeilds
    If POSn.Text <> "" Then
        sql = "select * from purchaseorder where[serialno]like" & CStr(POSn.Text) & ""
        POAdo.RecordSource = sql
        POAdo.Refresh
        If POAdo.Recordset.RecordCount > 0 Then
            Call SetpoDataFeilds
        Else
            MsgBox ("Purchase Order Serial number not found")
        End If
    ElseIf POno.Text <> "" Then
        sql = "select * from purchaseorder where[purchaseorderno]like" & CStr(POno.Text) & ""
        POAdo.RecordSource = sql
        POAdo.Refresh
        If POAdo.Recordset.RecordCount > 0 Then
            Call SetpoDataFeilds
        Else

```

```

        MsgBox ("Purchase Order number not found")
    End If
End If
If (POSn.Text <> "" Or POno.Text <> "") And POAdo.Recordset.RecordCount > 0 Then
    i = 0
    Do While i <> 8
        POTextBox(i).Locked = True
        POTextBox(i).BackColor = &H80000009
        POTextBox(i).Visible = True
        i = i + 1
    Loop
    POSn.Locked = True
    POno.Locked = True
    POModify.Enabled = True
    PODisplay.Enabled = False
    POSn.Visible = False
    POno.Visible = False
    If UserLevel = 2 Then
        POModify.Enabled = False
    End If
End If

End Sub

Private Sub poModify_Click()
    i = 0
    Do While i <> 8
        POTextBox(i).Locked = False
        POTextBox(i).BackColor = &H80000009
        i = i + 1
    Loop
    POSn.Locked = False
    POno.Locked = False
    POButton(2).Enabled = True
    POTextBox(0).Enabled = False
    POButton(3).Enabled = True
End Sub

Private Sub poNo_Click()
    Dim break As Boolean
    Dim sql As String
    break = False
    Call ClearpoDatafeilds
    If POno.Text <> "" Then
        sql = "select * from purchaseorder where[purchaseorderno]like" & CStr(POno.Text) & " order by [purchaseorderno]"
        POAdo.RecordSource = sql
        POAdo.Refresh
        If POAdo.Recordset.RecordCount > 0 Then
            Call SetpoDataFeilds
        End If
        i = 0
        Do While i <> 8
            POTextBox(i).Locked = True
            POTextBox(i).BackColor = &H80000009
            i = i + 1
        Loop
        POSn.Locked = True
        POno.Locked = True
        POModify.Enabled = True
        PODisplay.Enabled = False
        POSn.Visible = False
        POno.Visible = False
        POTextBox(0).Visible = True
        POTextBox(1).Visible = True
        If UserLevel = 2 Then
            POModify.Enabled = False
        End If
    End If
End Sub

Private Sub poNo_DropDown()
    POno.Clear
    POAdo.RecordSource = "select * from purchaseorder order by purchaseorderno"
    POAdo.Refresh
    While POAdo.Recordset.EOF <> True
        POno.AddItem (POAdo.Recordset.Fields("PurchaseOrderNo"))
        POAdo.Recordset.MoveNext
    End While
End Sub

```

```

Wend
PODisplay.Enabled = True
End Sub

```

```

Private Sub posN_Click()
Dim break As Boolean
Dim sql As String
break = False
Call ClearpoDatafeilds
If POSn.Text <> "" And POAction = 1 Then
    sql = "select * from purchaseorder where[serialno]like" & CStr(POSn.Text) & " order by [serialno]"
    POAdo.RecordSource = sql
    POAdo.Refresh
    If POAdo.Recordset.RecordCount > 0 Then
        Call SetpoDataFeilds
    End If
    i = 0
    Do While i <> 8
        POTextBox(i).Locked = True
        POTextBox(i).BackColor = &H80000009
        i = i + 1
    Loop
    POSn.Locked = True
    POno.Locked = True
    POModify.Enabled = True
    PODisplay.Enabled = False
    POSn.Visible = False
    POno.Visible = False
    POTextBox(0).Visible = True
    POTextBox(1).Visible = True
    If UserLevel = 2 Then
        POModify.Enabled = False
    End If
End If
End Sub

```

```

Private Sub posN_dropdown()
    POSn.Clear
    'If POAction = 0 Then
        POSn.Enabled = True
        vehado.RecordSource = "select * from purchaseorder order by serialno"
        vehado.Refresh
        While vehado.Recordset.EOF <> True
            POSn.AddItem (vehado.Recordset.Fields("serialno"))
            vehado.Recordset.MoveNext
        Wend
    'End If
End Sub

```

```

Private Sub poButton_Click(Index As Integer)
Dim sql As String
Dim i As Integer
Dim empt As Boolean
Dim duplicate As Boolean

' New
If Index = 0 Then
    Call ClearpoDatafeilds
    Call ClearpoTextBoxes
    POTextBox(7).Text = "Open"
    POAction = 0
    POAdo.Visible = False
    POno.Visible = False
    PODisplay.Enabled = False
    POButton(2).Enabled = True
    POButton(3).Enabled = False
    POTextBox(0).Visible = True
    POTextBox(0).Enabled = True
    POTextBox(1).Visible = True
    POTextBox(1).Enabled = True
    POSn.Visible = False
    POAdo.RecordSource = "select * from purchaseorder"
    POAdo.Refresh
    i = 0
    Do While i <> 8
        POTextBox(i).Locked = False
        POTextBox(i).BackColor = &H80000009
    Loop
End If
End Sub

```

```

        i = i + 1
    Loop
    POModify.Enabled = False

' Search
    ElseIf Index = 1 Then
        Call ClearpoDatafeilds
        POAction = 1
        POAdo.Visible = False
        POno.Visible = True
        POSn.Visible = True
        PODisplay.Enabled = True
        POButton(2).Enabled = False
        POButton(3).Enabled = False
        Call ClearpoTextBoxes
        POAdo.RecordSource = "select * from purchaseorder"
        POAdo.Refresh
        i = 0
        Do While i <> 8
            POTextBox(i).Locked = True
            POTextBox(i).BackColor = &H8000000B
            i = i + 1
        Loop
        POno.Visible = True
        POSn.Visible = True
        POno.Locked = False
        POSn.Locked = False
        POModify.Enabled = False
        POButton(3).Enabled = False
        Call ClearpoTextBoxes
' Save
    ElseIf Index = 2 Then
        If POAction = 0 Then
            POAdo.RecordSource = "select * from purchaseorder"
            POAdo.Refresh
            Dim found As Boolean
            duplicate = False
            While POAdo.Recordset.EOF <> True And duplicate = False
                If POAdo.Recordset.Fields("serialno") = POTextBox(0).Text Then
                    duplicate = True
                Else
                    POAdo.Recordset.MoveNext
                End If
            Wend
            If POTextBox(0).Text = "" Or POTextBox(0).Text = " " Then
                MsgBox ("Enter " + POLabel(0).Caption)
            ElseIf IsNumeric(POTextBox(0).Text) = False Then
                MsgBox ("Invalid Purchase Order Serial Number")
            ElseIf IsNumeric(POTextBox(1).Text) = False And POTextBox(1).Text <> "" Then
                MsgBox ("Invalid Purchase Order Number")
            ElseIf duplicate = True Then
                MsgBox ("Duplicate Purchase Order Serial Number")
            ElseIf POTextBox(2).Text <> "" And IsDate(POTextBox(2).Text) = False Then
                MsgBox ("Enter Date like (dd/mm/yy) in " + POLabel(2))
            ElseIf POTextBox(3).Text <> "" And IsDate(POTextBox(3).Text) = False Then
                MsgBox ("Enter Date like (dd/mm/yy) in " + POLabel(3))
            Else
                With POAdo.Recordset
                    .AddNew
                    .Fields("serialno") = POTextBox(0).Text
                    If POTextBox(1) <> "" Then
                        .Fields("PurchaseOrderno") = POTextBox(1).Text
                    End If
                    If POTextBox(2).Text <> "" Then
                        .Fields("podate") = POTextBox(2).Text
                    End If
                    If POTextBox(3).Text <> "" Then
                        .Fields("datematerialneeded") = POTextBox(3).Text
                    End If
                    .Fields("supplier1") = POTextBox(4).Text
                    .Fields("supplier2") = POTextBox(5).Text
                    .Fields("supplier3") = POTextBox(6).Text
                    .Fields("postatus") = POTextBox(7).Text
                    .Update
                End With
                Call ClearpoTextBoxes
            End If
        End If
    End If

```

```

End If

If POAction = 1 Then
    If IsDate(POTextBox(2)) = False And POTextBox(2) <> "" Then
        MsgBox ("Enter Date: DD/MM/YY in " + POLabel(2).Caption)
    ElseIf IsDate(POTextBox(3)) = False And POTextBox(3) <> "" Then
        MsgBox ("Enter Date: DD/MM/YY in " + POLabel(3).Caption)
    ElseIf IsNumeric(POTextBox(1)) = False And POTextBox(1) <> "" Then
        MsgBox ("Invalid " + POLabel(1).Caption)
    Else
        POAdo.Recordset.Update
        POAdo.Refresh
        MsgBox ("Purchase Order Updated")
    End If
End If

' Delete
ElseIf Index = 3 Then
    PODisplay.Enabled = False
    ans = MsgBox("Are you sure you want to delete Purchase Order " & POAdo.Recordset.Fields("serialno"), 524324)
    If ans = 6 Then
        POCon.Execute "delete from purchaseorder where[serialno]like" & CStr(POTextBox(0).Text) & ""
        i = 0
        Do While i <> 8
            POTextBox(i).Locked = True
            POTextBox(i).BackColor = &H8000000B
            i = i + 1
        Loop
        POno.Locked = False
        POSn.Locked = False
        POButton(2).Enabled = False
        POModify.Enabled = False
        PODisplay.Enabled = True
        POno.Visible = True
        POSn.Visible = True
        POButton(3).Enabled = False
        POAdo.Visible = False
        Call ClearpoTextBoxes
    End If
End If

' Exit
ElseIf Index = 4 Then
    UserCon.Execute "delete from currentuser"
End
End If
End Sub

Private Sub ClearpoTextBoxes()
    POno.Text = ""
    POSn.Text = ""
    Dim i As Integer
    i = 0
    Do While i <> 8
        POTextBox(i).Text = ""
        i = i + 1
    Loop
End Sub

Private Sub ClearpoDatafeilds()
    POno.DataField = ""
    POSn.DataField = ""
    i = 0
    Do While i <> 8
        POTextBox(i).DataField = ""
        i = i + 1
    Loop
End Sub

Private Sub SetpoDataFeilds()
    POno.DataField = "PurchaseOrderNo"
    POSn.DataField = "serialno"
    POTextBox(0).DataField = "serialno"
    POTextBox(1).DataField = "purchaseorderno"
    POTextBox(2).DataField = "podate"
    POTextBox(3).DataField = "datematerialneeded"
    POTextBox(4).DataField = "supplier1"
    POTextBox(5).DataField = "supplier2"
    POTextBox(6).DataField = "supplier3"

```

```

    POTextBox(7).DataField = "postatus"
End Sub
'*****
'***** Purchase Order End *****
'*****

'*****
'***** Service Request Start *****
'*****

Private Sub SRAdo_MoveComplete(ByVal adReason As ADODB.EventReasonEnum, ByVal pError As ADODB.Error, adStatus As ADODB.EventStatusEnum, ByVal pRecordset As ADODB.Recordset)
    If SRAdo.Recordset.RecordCount > 0 And SRAdo.Recordset.EOF <> True And SRAdo.Recordset.BOF <> True And SrAction = 1 And SRAdo.Visible = True Then
        Call GetWR
    End If
    If SRAdo.Recordset.RecordCount > 1 And SRAdo.Recordset.EOF <> True And SRAdo.Recordset.BOF <> True Then
        SRAdo.Caption = "Record " & SRAdo.Recordset.AbsolutePosition & " of " & SRAdo.Recordset.RecordCount
    End If
End Sub

Private Sub SRDisplay_Click()
    Dim sql As String
    Call ClearSRDatafeilds
    If SRNo.Text <> "" Then
        sql = "select * from servicerequest where[servicerequestno]like" & CStr(SRNo.Text) & "" order by [servicerequestno]"
        SRAdo.RecordSource = sql
        SRAdo.Refresh
        If SRAdo.Recordset.RecordCount > 0 Then
            Call SetSRDataFeilds
            Call GetWR
        Else
            MsgBox ("Service Request number not found")
        End If
    ElseIf SRVehNo.Text <> "" Then
        sql = "select * from servicerequest where[vehiclenu]like" & CStr(SRVehNo.Text) & "" order by [vehiclenu]"
        SRAdo.RecordSource = sql
        SRAdo.Refresh
        If SRAdo.Recordset.RecordCount > 0 Then
            Call SetSRDataFeilds
            Call GetWR
            If SRAdo.Recordset.RecordCount > 1 Then
                SRAdo.Visible = True
            End If
        Else
            MsgBox ("Vehicle number not found")
        End If
    End If
    If (SRNo.Text <> "" Or SRVehNo.Text <> "") And SRAdo.Recordset.RecordCount > 0 Then
        i = 0
        Do While i <> 13
            SRTextBox(i).Locked = True
            SRTextBox(i).BackColor = &H80000009
            SRTextBox(i).Visible = True
            i = i + 1
        Loop
        SRNo.Locked = True
        SRVehNo.Locked = True
        SRModify.Enabled = True
        SRDisplay.Enabled = False
        SRNo.Visible = False
        SRVehNo.Visible = False
        If UserLevel = 2 Then
            SRModify.Enabled = False
        End If
    End If
End Sub

Private Sub GetWR()
    i = 8
    Do While i <> 13
        SRTextBox(i).Text = ""
        i = i + 1
    Loop
    WRAdo.RecordSource = "select * from WorkRequested"
    WRAdo.Refresh

```

```

i = 8
While WRAdo.Recordset.EOF <> True And i <> 13
    If WRAdo.Recordset.Fields("srno") = SRAdo.Recordset.Fields("servicerequestno") Then
        SRTextBox(i).Text = WRAdo.Recordset.Fields("workrequested")
        i = i + 1
    End If
    WRAdo.Recordset.MoveNext
Wend
End Sub

Private Sub SRModify_Click()
    i = 0
    Do While i <> 8
        SRTextBox(i).Locked = False
        SRTextBox(i).BackColor = &H80000009
        i = i + 1
    Loop
    SRNo.Locked = False
    SRVehNo.Locked = False
    SRButton(2).Enabled = True
    SRTextBox(0).Enabled = False
    SRButton(3).Enabled = True
End Sub

Private Sub SRNo_Click()
    Dim break As Boolean
    Dim sql As String
    break = False
    Call ClearSRDatafeilds
    If SRNo.Text <> "" Then
        sql = "select * from servicerequest where[servicerequestno]like" & CStr(SRNo.Text) & "" order by [servicerequestno]"
        SRAdo.RecordSource = sql
        SRAdo.Refresh
        If SRAdo.Recordset.RecordCount > 0 Then
            Call SetSRDataFeilds
            Call GetWR
        End If
        i = 0
        Do While i <> 13
            SRTextBox(i).Locked = True
            SRTextBox(i).BackColor = &H80000009
            i = i + 1
        Loop
        SRNo.Locked = True
        SRVehNo.Locked = True
        SRModify.Enabled = True
        SRDisplay.Enabled = False
        SRNo.Visible = False
        SRVehNo.Visible = False
        SRTextBox(0).Visible = True
        SRTextBox(1).Visible = True
        If UserLevel = 2 Then
            SRModify.Enabled = False
        End If
    End If
End Sub

Private Sub SRNo_DropDown()
    SRNo.Clear
    SRAdo.RecordSource = "select * from servicerequest order by servicerequestno"
    SRAdo.Refresh
    While SRAdo.Recordset.EOF <> True
        SRNo.AddItem (SRAdo.Recordset.Fields("servicerequestno"))
        SRAdo.Recordset.MoveNext
    Wend
    SRDisplay.Enabled = True
End Sub

Private Sub SRVehNo_Click()
    Dim break As Boolean
    Dim sql As String
    break = False
    Call ClearSRDatafeilds
    If SRVehNo.Text <> "" And SrAction = 1 Then
        sql = "select * from servicerequest where[vehiclno]like" & CStr(SRVehNo.Text) & "" order by [vehiclno]"
        SRAdo.RecordSource = sql
        SRAdo.Refresh
    End If
End Sub

```

```

    If SRAdo.Recordset.RecordCount > 0 Then
        Call SetSRDataFeilds
        Call GetWR
    End If
    If SRAdo.Recordset.RecordCount > 1 Then
        SRAdo.Visible = True
    End If
    i = 0
    Do While i <> 13
        SRTextBox(i).Locked = True
        SRTextBox(i).BackColor = &H80000009
        i = i + 1
    Loop
    SRNo.Locked = True
    SRVehNo.Locked = True
    SRModify.Enabled = True
    SRDisplay.Enabled = False
    SRNo.Visible = False
    SRVehNo.Visible = False
    SRTextBox(0).Visible = True
    SRTextBox(1).Visible = True
    If UserLevel = 2 Then
        SRModify.Enabled = False
    End If
End If
End Sub

Private Sub SRVehNo_dropdown()
    SRVehNo.Clear
    If SrAction = 0 Then
        SRVehNo.Enabled = True
        vehado.RecordSource = "select * from vehicle order by kfupmno"
        vehado.Refresh
        While vehado.Recordset.EOF <> True
            SRVehNo.AddItem (vehado.Recordset.Fields("kfupmno"))
            vehado.Recordset.MoveNext
        Wend
    ElseIf SrAction = 1 Then
        SRAdo.RecordSource = "select distinct vehiclno from servicerequest order by vehiclno"
        SRAdo.Refresh
        If SRAdo.Recordset.RecordCount > 0 Then
            While SRAdo.Recordset.EOF <> True
                SRVehNo.AddItem (SRAdo.Recordset.Fields("vehiclno"))
                SRAdo.Recordset.MoveNext
            Wend
        End If
    End If
End Sub

Private Sub SRButton_Click(Index As Integer)
    Dim sql As String
    Dim i As Integer
    Dim empt As Boolean
    Dim duplicate As Boolean

    ' New
    If Index = 0 Then
        Call ClearSRDatafeilds
        Call ClearSRTextBoxes
        SrAction = 0
        SRAdo.Visible = False
        SRNo.Visible = False
        SRDisplay.Enabled = False
        SRButton(2).Enabled = True
        SRButton(3).Enabled = False
        SRTextBox(0).Visible = True
        SRTextBox(0).Enabled = True
        SRTextBox(1).Visible = False
        SRVehNo.Visible = True
        SRVehNo.Locked = False
        SRAdo.RecordSource = "select * from servicerequest"
        SRAdo.Refresh
        i = 0
        Do While i <> 13
            SRTextBox(i).Locked = False
            SRTextBox(i).BackColor = &H80000009
            i = i + 1
        Loop
    End If
End Sub

```

```

Loop
SRModify.Enabled = False
vehado.RecordSource = "select * from vehicle"
vehado.Refresh
While vehado.Recordset.EOF <> True
    SRVehNo.AddItem (vehado.Recordset.Fields("kfupmno"))
    vehado.Recordset.MoveNext
Wend

' Search
ElseIf Index = 1 Then
    Call ClearSRDatafeilds
    SrAction = 1
    SRAdo.Visible = False
    SRNo.Visible = True
    SRVehNo.Visible = True
    SRDisplay.Enabled = True
    SRButton(2).Enabled = False
    SRButton(3).Enabled = False
    Call ClearSRTextBoxes
    SRAdo.RecordSource = "select * from servicerequest"
    SRAdo.Refresh
    i = 0
    Do While i <> 13
        SRTextBox(i).Locked = True
        SRTextBox(i).BackColor = &H8000000B
        i = i + 1
    Loop
    SRNo.Visible = True
    SRVehNo.Visible = True
    SRNo.Locked = False
    SRVehNo.Locked = False
    SRModify.Enabled = False
    SRButton(3).Enabled = False
    Call ClearSRTextBoxes

' Save
ElseIf Index = 2 Then
    If SrAction = 0 Then
        SRAdo.Refresh
        i = 8
        vehado.RecordSource = "select * from vehicle"
        vehado.Refresh
        Dim found As Boolean
        found = False
        While vehado.Recordset.EOF <> True And found <> True
            If vehado.Recordset.Fields("kfupmno") = SRVehNo.Text Then
                found = True
            Else
                vehado.Recordset.MoveNext
            End If
        Wend
        duplicate = False
        While SRAdo.Recordset.EOF <> True And duplicate = False
            If SRAdo.Recordset.Fields("servicerequestno") = SRTextBox(0).Text Then
                duplicate = True
            Else
                SRAdo.Recordset.MoveNext
            End If
        Wend
        If SRTextBox(0).Text = "" Or SRTextBox(0).Text = " " Then
            MsgBox ("Enter " + SRLabel(0).Caption)
        ElseIf IsNumeric(SRTextBox(0).Text) = False Then
            MsgBox ("Invaild Service Request Number")
        ElseIf SRVehNo.Text = "" Or SRVehNo.Text = " " Then
            MsgBox ("Enter " + SRLabel(1).Caption)
        ElseIf empty = False And duplicate = True Then
            MsgBox ("Duplicate Service Request Number")
        ElseIf SRTextBox(5).Text <> "" And IsDate(SRTextBox(5).Text) = False Then
            MsgBox ("Enter Date like (dd/mm/yy) in " + SRLabel(5))
        ElseIf vehado.Recordset.EOF = True Then
            MsgBox ("Invalid Vehicle Number")
        ElseIf SRTextBox(8).Text = "" Or SRTextBox(8).Text = " " Then
            MsgBox ("Please enter at least one requested work")
        ElseIf empty = False Then
            With SRAdo.Recordset
                .AddNew
                .Fields("servicerequestno") = SRTextBox(0).Text
                .Fields("VehicleNo") = SRVehNo.Text
            End With
        End If
    End If
End If

```

```

.Fields("jobtype") = SRTextBox(2).Text
If SRTextBox(3).Text <> "" Then
    .Fields("Vehiclemileage") = SRTextBox(3).Text
End If
.Fields("location") = SRTextBox(4).Text
If SRTextBox(5).Text <> "" Then
    .Fields("srdate") = SRTextBox(5).Text
End If
.Fields("requestedby") = SRTextBox(6).Text
If SRTextBox(3).Text <> "" Then
    .Fields("phoneno") = SRTextBox(7).Text
End If
.Update
End With
WRAdo.RecordSource = "select * from WorkRequested"
WRAdo.Refresh
WRAdo.Recordset.AddNew
WRAdo.Recordset.Fields("srno") = SRTextBox(0).Text
WRAdo.Recordset.Fields("workrequested") = SRTextBox(8).Text
WRAdo.Recordset.Update
i = 9
Do While i <> 13
    If SRTextBox(i).Text <> "" And SRTextBox(i).Text <> " " Then
        WRAdo.Refresh
        WRAdo.Recordset.AddNew
        WRAdo.Recordset.Fields("srno") = SRTextBox(0).Text
        WRAdo.Recordset.Fields("workrequested") = SRTextBox(i).Text
        WRAdo.Recordset.Update
    End If
    i = i + 1
Loop
Call ClearSRTextBoxes
End If
If SrAction = 1 Then
    empt = False
    i = 0
    Do While i <> 2
        If SRTextBox(i).Text = "" Or SRTextBox(i).Text = " " Then
            MsgBox ("Enter " + SRLabel(i).Caption)
            empt = True
        End If
        i = i + 1
    Loop
    If IsDate(SRTextBox(5)) = False And SRTextBox(5) <> "" Then
        MsgBox ("Enter Date: DD/MM/YY in " + SRLabel(5).Caption)
    ElseIf IsNumeric(SRTextBox(3)) = False And SRTextBox(3) <> "" Then
        MsgBox ("Invalid " + SRLabel(3).Caption)
    Else
        SRAdo.Recordset.Update
        SRAdo.Refresh
        MsgBox ("Service Request Updated")
    End If
End If
' Delete
ElseIf Index = 3 Then
    SRDisplay.Enabled = False
    ans = MsgBox("Are you sure you want to delelte Service Request " & SRAdo.Recordset.Fields("servicerequestno"),
524324)
    If ans = 6 Then
        SRCon.Execute "delete from servicerequest where[servicerequestno]like" & CStr(SRTextBox(0).Text) & ""
        WRCon.Execute "delete from workrequested where[srno]like" & CStr(SRTextBox(0).Text) & ""
        SRCon.Execute "delete from workorder where[srnum]like" & CStr(SRTextBox(0).Text) & ""
        i = 0
        Do While i <> 13
            SRTextBox(i).Locked = True
            SRTextBox(i).BackColor = &H8000000B
            i = i + 1
        Loop
        SRNo.Locked = False
        SRVehNo.Locked = False
        SRButton(2).Enabled = False
        SRModify.Enabled = False
        SRDisplay.Enabled = True
        SRNo.Visible = True
        SRVehNo.Visible = True
        SRButton(3).Enabled = False

```

```

        SRAdo.Visible = False
        Call ClearSRTextBoxes
    End If
' Exit
    ElseIf Index = 4 Then
        UserCon.Execute "delete from currentuser"
    End
End If
End Sub

Private Sub ClearSRTextBoxes()
    SRNo.Text = ""
    SRVehNo.Text = ""
    Dim i As Integer
    i = 0
    Do While i <> 13
        SRTextBox(i).Text = ""
        i = i + 1
    Loop
End Sub

Private Sub ClearSRDatafeilds()
    SRNo.DataField = ""
    SRVehNo.DataField = ""
    i = 0
    Do While i <> 8
        SRTextBox(i).DataField = ""
        i = i + 1
    Loop
End Sub

Private Sub SetSRDataFeilds()
    SRNo.DataField = "servicerequestno"
    SRVehNo.DataField = "vehiclenu"
    SRTextBox(0).DataField = "servicerequestno"
    SRTextBox(1).DataField = "vehiclenu"
    SRTextBox(2).DataField = "jobtype"
    SRTextBox(3).DataField = "vehiclemileage"
    SRTextBox(4).DataField = "location"
    SRTextBox(5).DataField = "srdate"
    SRTextBox(6).DataField = "requestedby"
    SRTextBox(7).DataField = "phonenu"
End Sub

'*****
'***** Service Request End *****
'*****

'*****
'***** Vehicle Start *****
'*****

Private Sub VehDisplay_Click()
    Dim sql As String
    Call ClearDataFeilds
    If VehNo.Text <> "" Then
        sql = "select * from vehicle where[kfupmno]like" & CStr(VehNo.Text) & "" order by [kfupmno]"
        vehado.RecordSource = sql
        vehado.Refresh
        If vehado.Recordset.RecordCount > 0 Then
            Call SetDataFeilds
        Else
            MsgBox ("Vehicle number not found")
        End If
    ElseIf VehReg.Text <> "" Then
        sql = "select * from vehicle where[regno]like" & CStr(VehReg.Text) & "" order by [regno]"
        vehado.RecordSource = sql
        vehado.Refresh
        If vehado.Recordset.RecordCount > 0 Then
            Call SetDataFeilds
        Else
            MsgBox ("Vehicle Reginstratio number not found")
        End If
    End If
    If vehado.Recordset.RecordCount > 0 And VehNo.Text <> "" And VehReg.Text <> "" Then
        i = 0
        Do While i <> 19
            VehFrameTextBox(i).Locked = True
            VehFrameTextBox(i).BackColor = &H80000009
        Loop
    End If
End Sub

```

```

        i = i + 1
    Loop
    VehNo.Locked = True
    VehReg.Locked = True
    VehModify.Enabled = True
    VehDisplay.Enabled = False
    VehNo.Visible = False
    VehReg.Visible = False
    If UserLevel = 2 Then
        VehModify.Enabled = False
    End If
End If
End Sub

Private Sub VehModify_Click()
    i = 0
    Do While i <> 19
        VehFrameTextBox(i).Locked = False
        VehFrameTextBox(i).BackColor = &H80000009
        i = i + 1
    Loop
    VehNo.Locked = False
    VehReg.Locked = False
    VehTopButton(2).Enabled = True
    VehFrameTextBox(0).Enabled = False
    VehTopButton(3).Enabled = True
End Sub

Private Sub VehNo_Click()
    Dim break As Boolean
    Dim sql As String
    break = False
    Call ClearDataFeilds
    If VehNo.Text <> "" Then
        sql = "select * from vehicle where[kfupmno]like" & CStr(VehNo.Text) & "" order by [kfupmno]"
        vehado.RecordSource = sql
        vehado.Refresh
        If vehado.Recordset.RecordCount > 0 Then
            Call SetDataFeilds
        End If
        i = 0
        Do While i <> 19
            VehFrameTextBox(i).Locked = True
            VehFrameTextBox(i).BackColor = &H80000009
            i = i + 1
        Loop
        VehNo.Locked = True
        VehReg.Locked = True
        VehModify.Enabled = True
        VehDisplay.Enabled = False
        VehNo.Visible = False
        VehReg.Visible = False
        If UserLevel = 2 Then
            VehModify.Enabled = False
        End If
    End If
End Sub

Private Sub VehNo_DropDown()
    Call ClearDataFeilds
    vehado.Visible = False
    VehNo.Clear
    vehado.RecordSource = "select * from vehicle order by kfupmno"
    vehado.Refresh
    While vehado.Recordset.EOF <> True
        VehNo.AddItem (vehado.Recordset.Fields("kfupmno"))
        vehado.Recordset.MoveNext
    Wend
End Sub

Private Sub VehReg_Click()
    Dim break As Boolean
    Dim sql As String
    break = False
    Call ClearDataFeilds
    If VehReg.Text <> "" Then
        sql = "select * from vehicle where[regno]like" & CStr(VehReg.Text) & "" order by [regno]"
    End If
End Sub

```

```

    vehado.RecordSource = sql
    vehado.Refresh
    If vehado.Recordset.RecordCount > 0 Then
        Call SetDataFeilds
    End If
    i = 0
    Do While i <> 19
        VehFrameTextBox(i).Locked = True
        VehFrameTextBox(i).BackColor = &H80000009
        i = i + 1
    Loop
    VehNo.Locked = True
    VehReg.Locked = True
    VehTopButton(2).Enabled = False
    VehModify.Enabled = True
    VehDisplay.Enabled = False
    VehNo.Visible = False
    VehReg.Visible = False
    If UserLevel = 2 Then
        VehModify.Enabled = False
    End If
End If
End Sub

Private Sub VehReg_DropDown()
    Call ClearDataFeilds
    vehado.Visible = False
    VehReg.Clear
    vehado.RecordSource = "select * from vehicle order by regno"
    vehado.Refresh
    While vehado.Recordset.EOF <> True
        VehReg.AddItem (vehado.Recordset.Fields("regno"))
        vehado.Recordset.MoveNext
    Wend
End Sub

Private Sub VehTopButton_Click(Index As Integer)
    Dim sql As String
    Dim i As Integer
    Dim empt As Boolean
    Dim duplicate As Boolean
    Call ClearDataFeilds
'New
    If Index = 0 Then
        Action = 0
        vehado.Visible = False
        VehNo.Visible = False
        VehReg.Visible = False
        VehDisplay.Enabled = False
        VehTopButton(2).Enabled = True
        VehTopButton(3).Enabled = False
        VehDisplay.Enabled = False
        VehFrameTextBox(0).Enabled = True
        Call ClearAllVehicleFrameTextBoxes
        sql = "select * from vehicle"
        vehado.RecordSource = sql
        vehado.Refresh
        i = 0
        Do While i <> 19
            VehFrameTextBox(i).Locked = False
            VehFrameTextBox(i).BackColor = &H80000009
            i = i + 1
        Loop
        VehNo.Locked = True
        VehReg.Locked = True
        VehTopButton(2).Enabled = True
        VehModify.Enabled = False
        VehDisplay.Enabled = False
        VehNo.Visible = False
        VehReg.Visible = False
'Search
    ElseIf Index = 1 Then
        Action = 1
        VehNo.Visible = True
        VehReg.Visible = True
        VehDisplay.Enabled = True
        VehFrameTextBox(0).Enabled = True

```

```

VehTopButton(3).Enabled = False
Call ClearAllVehicleFrameTextBoxes
sql = "select * from vehicle"
vehado.RecordSource = sql
vehado.Refresh
i = 0
Do While i <> 19
    VehFrameTextBox(i).Locked = True
    VehFrameTextBox(i).BackColor = &H8000000B
    i = i + 1
Loop
VehNo.Visible = True
VehReg.Visible = True
VehNo.Locked = False
VehReg.Locked = False
VehModify.Enabled = False
VehTopButton(2).Enabled = False
VehDisplay.Enabled = True
'Save
ElseIf Index = 2 Then
    VehDisplay.Enabled = False
    If Action = 0 Then
        vehado.Refresh
        i = 0
        empt = False
        Do While i <> 3 And empt = False
            If VehFrameTextBox(i).Text = "" Or VehFrameTextBox(i).Text = " " Then
                MsgBox ("Enter " + VehFrameLabel(i).Caption)
                empt = True
            End If
            If IsNumeric(VehFrameTextBox(0).Text) = False And empt = False Then
                MsgBox ("Invalid Vehicle number")
                empt = True
            End If
            i = i + 1
        Loop
        duplicate = False
        While vehado.Recordset.EOF <> True And duplicate <> True
            If vehado.Recordset.Fields("kfupmno") = VehFrameTextBox(0).Text Then
                duplicate = True
            Else
                vehado.Recordset.MoveNext
            End If
        Wend
        If empt = False And duplicate = True Then
            MsgBox ("Duplicate vehicle no")
        ElseIf VehFrameTextBox(3).Text <> "" And IsDate(VehFrameTextBox(3).Text) = False Then
            MsgBox ("Enter Date like (dd/mm/yy) in " + VehFrameLabel(3))
        ElseIf VehFrameTextBox(8).Text <> "" And IsDate(VehFrameTextBox(8).Text) = False Then
            MsgBox ("Enter Date like (dd/mm/yy) in " + VehFrameLabel(8))
        ElseIf empt = False Then
            With vehado.Recordset
                .AddNew
                .Fields("kfupmno") = VehFrameTextBox(0).Text
                .Fields("RegNO") = VehFrameTextBox(1).Text
                If VehFrameTextBox(3).Text <> "" And IsDate(VehFrameTextBox(3).Text) = True Then
                    .Fields("purchasedate") = VehFrameTextBox(3).Text
                End If
                .Fields("dept") = VehFrameTextBox(2).Text
                .Fields("chassis") = VehFrameTextBox(9).Text
                .Fields("make") = VehFrameTextBox(6).Text
                If VehFrameTextBox(4).Text <> "" Then
                    .Fields("yearmodel") = VehFrameTextBox(4).Text
                End If
                .Fields("engineno") = VehFrameTextBox(10).Text
                .Fields("transtype") = VehFrameTextBox(11).Text
                .Fields("sparkplugno") = VehFrameTextBox(12).Text
                .Fields("electricsys") = VehFrameTextBox(13).Text
                .Fields("airfilter") = VehFrameTextBox(15).Text
                .Fields("oilfilter") = VehFrameTextBox(14).Text
                .Fields("drivebelt") = VehFrameTextBox(16).Text
                .Fields("tire") = VehFrameTextBox(17).Text
                If VehFrameTextBox(5).Text <> "" Then
                    .Fields("warrantyear") = VehFrameTextBox(5).Text
                End If
                .Fields("vehstatus") = VehFrameTextBox(7).Text
                If VehFrameTextBox(8).Text <> "" And IsDate(VehFrameTextBox(8).Text) = True Then

```

```

        .Fields("retiredate") = VehFrameTextBox(8).Text
    End If
    .Fields("note") = VehFrameTextBox(18).Text
    .Update
    End With
    Call ClearAllVehicleFrameTextBoxes
End If
End If
If Action = 1 Then
    empt = False
    Do While i <> 2 And empt = False
        If VehFrameTextBox(i).Text = "" Or VehFrameTextBox(i).Text = " " Then
            MsgBox ("Enter " + VehFrameLabel(i).Caption)
            empt = True
        End If
        i = i + 1
    Loop
    If VehFrameTextBox(3).Text <> "" And IsDate(VehFrameTextBox(3).Text) = False Then
        MsgBox ("Enter Date like (dd/mm/yy) in " + VehFrameLabel(3))
    ElseIf VehFrameTextBox(8).Text <> "" And IsDate(VehFrameTextBox(8).Text) = False Then
        MsgBox ("Enter Date like (dd/mm/yy) in " + VehFrameLabel(8))
    Else
        vehado.Recordset.Update
        MsgBox ("Data Has been updated")
    End If
End If
End If
'Delete
ElseIf Index = 3 Then
    VehDisplay.Enabled = False
    If VehNo.Text <> "" Then
        vehado.Refresh
        While vehado.Recordset.EOF <> True And vehado.Recordset.Fields("kfupmno") <> VehNo.Text
            vehado.Recordset.MoveNext
        Wend
        If vehado.Recordset.EOF <> True And vehado.Recordset.Fields("kfupmno") = VehNo.Text Then
            ans = MsgBox("Are you sure you want to delete Vehicle No: " + VehNo.Text, 524324)
            If ans = 6 Then
                VehCon.Execute ("delete from vehicle where[kfupmno]like'" & CStr(VehNo.Text) & "'")
                'SRCon.Execute ("delete from servicerequest where[vehiclENO]like'" & CStr(VehNo.Text) & "'")
                'VehCon.Execute ("delete from workorder where[vehno]like'" & CStr(VehNo.Text) & "'")

                i = 0
                Do While i <> 19
                    VehFrameTextBox(i).Locked = True
                    VehFrameTextBox(i).BackColor = &H8000000B
                    i = i + 1
                Loop
                VehNo.Locked = False
                VehReg.Locked = False
                VehTopButton(2).Enabled = False
                VehModify.Enabled = False
                VehDisplay.Enabled = True
                VehNo.Visible = True
                VehReg.Visible = True
                VehTopButton(3).Enabled = False
                Call ClearAllVehicleFrameTextBoxes
            End If
        End If
    End If
End If
' Exit
ElseIf Index = 4 Then
    UserCon.Execute "delete from currentuser"
End
End If
End Sub

Private Sub ClearAllVehicleFrameTextBoxes()
    VehNo.Text = ""
    VehReg.Text = ""
    Dim i As Integer
    i = 0
    Do While i <> 19
        VehFrameTextBox(i).Text = ""
        i = i + 1
    Loop
End Sub

```

```

Private Sub ClearDataFeilds()
    VehNo.DataField = ""
    VehReg.DataField = ""
    VehFrameTextBox(0).DataField = ""
    VehFrameTextBox(1).DataField = ""
    VehFrameTextBox(2).DataField = ""
    VehFrameTextBox(3).DataField = ""
    VehFrameTextBox(9).DataField = ""
    VehFrameTextBox(6).DataField = ""
    VehFrameTextBox(4).DataField = ""
    VehFrameTextBox(10).DataField = ""
    VehFrameTextBox(11).DataField = ""
    VehFrameTextBox(12).DataField = ""
    VehFrameTextBox(13).DataField = ""
    VehFrameTextBox(15).DataField = ""
    VehFrameTextBox(14).DataField = ""
    VehFrameTextBox(16).DataField = ""
    VehFrameTextBox(17).DataField = ""
    VehFrameTextBox(5).DataField = ""
    VehFrameTextBox(7).DataField = ""
    VehFrameTextBox(8).DataField = ""
    VehFrameTextBox(18).DataField = ""
End Sub

Private Sub SetDataFeilds()
    VehNo.DataField = "kfupmno"
    VehReg.DataField = "regno"
    VehFrameTextBox(0).DataField = "kfupmno"
    VehFrameTextBox(1).DataField = "regno"
    VehFrameTextBox(2).DataField = "dept"
    VehFrameTextBox(3).DataField = "purchasedate"
    VehFrameTextBox(9).DataField = "chassis"
    VehFrameTextBox(6).DataField = "make"
    VehFrameTextBox(4).DataField = "yearmodel"
    VehFrameTextBox(10).DataField = "engineno"
    VehFrameTextBox(11).DataField = "transtype"
    VehFrameTextBox(12).DataField = "sparkplugno"
    VehFrameTextBox(13).DataField = "electricsys"
    VehFrameTextBox(15).DataField = "airfilter"
    VehFrameTextBox(14).DataField = "oilfilter"
    VehFrameTextBox(16).DataField = "drivebelt"
    VehFrameTextBox(17).DataField = "tire"
    VehFrameTextBox(5).DataField = "warrantyyear"
    VehFrameTextBox(7).DataField = "vehstatus"
    VehFrameTextBox(8).DataField = "retiredate"
    VehFrameTextBox(18).DataField = "note"
End Sub
'*****
'***** Vehicle End *****
'*****

```

Glossary

1. **Service Request:** A KFUPM Workshop standard form distributed to various University colleges and departments by administrative affairs. The form has no serial number. A vehicle to be maintained by the workshop must have a valid and properly signed service request.
2. **Work Order:** A KFUPM Workshop standard form issued against a every service request. The work order is used by the workshop to record problems, activities and spare parts used per vehicle. Each work order has its own unique number.
3. **Purchase Order:** A KFUPM Workshop standard form using which the workshop requests spare parts that are not currently in-stock or has an estimated value of more than SAR295. The form is filled by the workshop and submitted to administrative affairs for purchase who issue a control number for each purchase order for tracking.
4. **Work-Complete Report:** A Workshop standard report using which the workshop notifies the customer of work completion and total cost.

Appendix A

Forms Currently Used By The Workshop

1. Form 1: Service Request
This form is filled by the department requesting vehicle service and must be submitted to workshop reception at vehicle admission.
2. Form 2: Work Order
This form is issued against each Service Request. This form is used to keep track of services done and parts consumed by vehicle while in workshop.
3. Form 3: Purchase Order
This form is filled-out by the workshop in an event that a given spare part is not available in the workshop's spare parts logistics. The form is then sent to the Administrative Affairs for purchasing. The PO is issued a control number by Administrative Affairs for tracking.
4. Form 4: Work Complete Notification Letter
This letter is issued after work completion and is sent to the customer department. The form lists the service(s) done, the spare parts used and the total cost.
5. Form 5: Vehicle Data Record Form
Each KFUPM-Owned vehicle has a record file in the workshop's filing system. The form listed specific data about vehicle and is organized by KFUPM number.